

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 395. - VOL. XIII.]

London : Saturday, March 18, 1843.

[PRICE 6D.

STANNARIES OF CORNWALL.
IN THE VICE-WARDEN'S COURT.

COWARD v. RICHARDS AND ANOTHER.

WHEREAS, the Vice-Warden did, by two several orders or decrees, made in the above-mentioned cause, and bearing date, respectively, the 25th day of January, 1840, and the 7th day of May last, order that a SALE be made of (amongst other things) the MACHINERY and MATERIALS upon and belonging to GUNNIS LAKE MINE, in the parish of Calstock, within the said Stannaries, under the direction of the Registrar of the Court, and that the proceeds of such sale should be applied by the said Registrar in the manner directed by the benefit of the said decree and general orders of the said court.

Notice is hereby given, that, pursuant to the said orders or decrees, a PUBLIC AUCTION will be HELDEN at Gunnis Lake Mine aforesaid, on Tuesday, the 28th day of March instant, at Eleven o'clock in the forenoon, for selling, either together or in lots, THREE STEAM-ENGINES—viz., a steam-engine, 4th inch cylinder, with cast-iron beam, two boilers about twenty tons, caps and brasses; a balance bob; a steam engine, 36-inch cylinder, piston and rod, condensing work, nozzles and education pipes, hand gear, parallel motion, brass bearings and valves, &c., complete; and a steam whale engine, 18-inch cylinder, with cage, span beam, upright stays, &c.—For viewing the same, application may be made to Captain George Bennett, at the mine; and for further particulars (if by letter, pre-paid), to Mr. Stokes, solicitor, Truro.

Dated the 15th day of March.

STANNARIES OF CORNWALL.
IN THE VICE-WARDEN'S COURT.

RICHARDS v. KITTO, Jan.

WHEREAS, the Vice-Warden did, on the 11th day of November last, order that a SALE be made of the PARTS or SHARES, and INTEREST, of the said Defendant, in GRAMBLER and ST. AUBYN CONSOLIDATED MINES, in the parish of Gwenap, within the said Stannaries, under the direction of the Registrar of the Court, and that the proceeds of such sale should be applied by the said Registrar in the manner directed by the decree in the above-mentioned cause.

Notice is hereby given, that, pursuant to the said decree, a PUBLIC AUCTION will be HELDEN at Pease's Hotel, in the borough of Truro, on Thursday, the 20th day of March instant, at Eleven o'clock in the forenoon, for selling, in such lots as shall be then and there determined on, 32-24ths and half SHARES, of and in the said mines, and the like PARTS, or SHARES, of and in the ORES, HALVANS, MACHINERY, and MATERIALS, and other EFFECTS upon and belonging to the said mines. For further information, application may be made at the mines, or to Messrs. Simmons, Pasingham, and Simmons, solicitors, Truro.

Dated the 24th day of March.

SHARES IN BOTALLACK & OTHER MINES.—FOR SALE.
BY AUCTION, on Saturday, the 26th inst., at Three o'clock in the afternoon, at Homming's Hotel, Penzance, by Mr. WILLIAM RICHARDS, in such lots as may be agreed on at the Sale-room, TWO ONE-HUNDREDTH PARTS, or SHARES, of and in all the rich and very productive copper mine, called BOTALLACK, with the like PARTS, or SHARES, of and in all the MACHINERY, MATERIALS, ORES, and other property thereto belonging, situate in the parish of St. Just, in Penwith; this mine is now dividing profits of from £40 to £50 per ton—1000 share every two months. Also, ONE THIRTY-SECOND PART, or SHARE, of and in all that tin mine, or adventure, called DING-DONG, with the like PART, or SHARE, of and in all the MACHINERY, MATERIALS, ORES, and other property thereto belonging, situate in the parish of Gulval; this mine has also yielded large profits to the adventurers. Also, THREE-SEVENTHES of SIX TWENTY-NINTH PARTS, or SHARES, of and in all that very productive and highly-promising tin mine, called BALLEWIDDEN, with the like PARTS, or SHARES, of and in all the MACHINERY, MATERIALS, ORES, and other property thereto belonging, situate in the parish of St. Just aforesaid.

To inspect the above mines, application should be made to the agents, and for further particulars to the auctioneer, or to Messrs. John and Rodd, solicitors, Penzance.—Penzance, March 13.

VALUABLE TIN MINES, called the ROYAL POLBEROU CONSOLS. In the parish of St. Agnes, within eight miles of Truro, Cornwall, with the ENGINES, MACHINERY, and MATERIALS thereto.—TO BE SOLD, pursuant to a decree of the High Court of Chancery, made in a cause wherein Firma de Tastet and another are plaintiffs, and William Carne and others are defendants, and wherein the said Firma de Tastet and another are plaintiffs, and Edward Bryant Gay is defendant, with the approbation of Nasau William Fenier, Esq., one of the Masters of the said court, in ONE LOT, at the Public Sale Rooms, at the Gray's Inn Coffee-house, Holborn, in the county of Middlesex, on Friday, the 1st day of March next, at Twelve o'clock at noon, all those extensive and valuable tin mines, well known as the ROYAL POLBEROU CONSOLS MINES, situate in the parish of St. Agnes, in the county of Cornwall, which have for many years past averaged the monthly produce of thirty tons of black tin, of excellent quality. These mines extend under a surface of upwards of 200 acres, and contain twenty-four shafts—mine of which are now in full working, with about 6000 fathoms of levels, and are held under grants, or sets, of which thirties years and upwards are unexpired, at the very moderate dues of £1 per ton, together with the STEAM-ENGINES, MACHINERY, ERECTIONS, BUILDINGS, and other MINING EFFECTS thereto belonging, comprising:

TWO STEAM PUMPING-ENGINES, of six inches cylinder each, five boilers, balance-boats, &c., complete.

TWO STEAM-WHIMS, respectively twenty-two and twenty inches cylinder, with four boilers, to one of which is attached a crusher.

A 30-inch CYLINDER STEAM-STAMPING-ENGINE, with three boilers, sixty-four hoods, frames, pines, &c., complete.

THREE SIXTEEN HEADS STAMPING-MILLS, with two wheels, each thirty feet in diameter, and three feet abreast, with hoods, pines, &c., complete; every requisite for dressing and calcining tin, and a sawing machine and water-wheel.

The buildings comprising smelters' and changing houses, smelting and carpenters' shops, coaling, store, carpenter, pig, engineers, sampling, casting, tin dressers, and changing houses—the latter with 100 miners' chests, also assay office, with every requisite; two stables, one powder magazine, and covered new pit, with frames. The smelting shop, which has every convenience for the smelting, with power-pounding and screw machines, kilns, moulds, and tools of every description; a large machine turning lathe, and other requisites in the carpenters' shop; also all the pincers, hammers, castings, brass air pump, tin horse whisks, shears, hobbles, drawing and framing carriages, and separators, weighing houses, beams, scales and weights, counting houses and other furniture; three docks, two crab wharves, large iron yard, 100 barrels, caskets, and shafts; capacities and other ropes; flat-rods and stands; rods, check lead pieces, pumps, H and top-dome pieces, working barrels, crucible pieces, slating houses, and glands; iron plates, common pines, crucible, and glands; brick pines, red pine, connection rods, blocks, cisterns, nearly 2000 fathoms of wood and iron framings, with all the ironworks, halvans, and fastenings, and other property and effects on the mine, except the stores and other articles, heretofore mentioned, to be taken at a valuation.

The stores, etc., now certain large quantities of iron, boiler and 10000 pines, crucible, gunpowder, salts, leather, calico, green, old copper and lead, sheeting, lead, old iron, iron bars, glass, and harness, three carts, and harnesses, defences and other stores, tools, rope, &c., and other materials of daily consumption, which, with the staff and the men on the mine at the time of completing the sale, are to be taken at a fair valuation by the purchaser.

The cost on this property has been upwards of £10,000, and the rents, which are very large and extensive, are now in full working, and are well fixed in every respect.

Purchasers may be had gratified upon application of the chambers of the said Master, Southampton Buildings, Chancery-lane; of Mr. E. H. Gandy, solicitor, 24, Lincoln's Inn Fields; of Messrs. Hughes, Kenway, and Masterman, solicitors, 17, Newgate-street, London; of Mr. C. K. Vignes, Truro, Cornwall; of Mr. J. G. Beckington, 1, Alderman's Walk, London; at the principal inn in St. Austell, Truro, Redruth, Camborne, and Penzance, in Cornwall; and of the miners, the manager and trustees of the mines.—Dated Feb. 20.

COLLIERY, IRONSTONE, IRON-WORK, and FOUNDRY, in Chelmsford.—TO BE LET, with value of the term of 100 years, the VALUABLE COAL-FIELD of WORTH RAUCHE, near Alton, of creased to the proprietor of the mines from Company. This coal has been wrought for the last forty years, in consequence with the Iron Works at Devonport, and in particularity well adapted for the manufacture of iron. The present workings are conducted to 100 feet below the upper five feet and nine feet, but there is an extensive field of the lower five feet down to water, with the usual coal in the property in abundance, both of which could be obtained by sinking down the existing pits of an intermediate depth; besides these, there are other workings some in the road side, and no weighty. The machinery, utensils, and works' houses will be delivered over to the tenant. It required by the usual offering for the North Devon Colliery, arrangements should be made with the Devon Iron Company for obtaining permission at the head of Worth of the company, and of the iron work and foundry, of present occupied by them. In this case, either a lease or a payment for the right to give up the ground on which the iron works are situated, and the leases of the coal and ironstone will be granted for such a number of years as may be agreed on. The ironstone supplies a considerable quantity of the material used by the present company, and the works being well situated for the making of iron, as well as the present purposes, could be conveniently continued.

The full particular apply to Robert Denison, Esq., at Alton, or to James L. Webb, W.S., & Co., Buxton Cliff—the latter of whom will give the working plan of the coal and ironstone.—Buxton, Feb. 24.

PURSUANT to a decree of the High Court of Chancery, made in a cause, "Woodman v. Smith," the CREDITORS of GEORGE ALFRED MUSKETT, late of the Rose park, Rickmansworth, and of St. Albans, both in the county of Herts, Equitable banker, deceased (who died in the month of January, 1842), are, by their solicitors, on or before the 20th day of May, 1842, to LEAVE their CLAIMS OF DEBTS before Nasau William Fenier, Esq., one of the Masters of the said court, at his office, in Southampton Buildings, Chancery-lane, London and are, on or before the 20th day of June, 1842, to ESTABLISH SUCH CLAIMS before the said Master, or, in default thereof, they will be preemptively exhausted the benefit of the said decree and general orders of the said court.

F. DRAKE, Bowyer street, Fleet-street, Plaintiff's solicitor,
HENRY HARPER, Kensington-cross, Defendant's solicitor.

MR JOHN KYMER'S PATENT FURNACE, whereby an ECONOMICAL APPLICATION OF FUEL IS EFFECTED, with RAPID EVAPORATION, and WITHOUT SMOKE.—A furnace, on this construction, is erected, and at work, at Messrs. Taddy and Co.'s, 48, Minories, where it may be seen, by card, to be had on application to Mr. J. M. Sunley, 71, Cornhill, or Mr. H. English, Mining Journal Office, 26, Fleet-street.

A PARTNER WANTED, in the WORKING of THREE MINES—LEAD ORE, COPPER ORE, and SLATE—in the county of Merioneth, contiguous to Bala, in the said county. It is already ascertained, on the surface and by boring, that a large bed is incorporated in the earth of each. A very profitable view is held out to any one disposed to join the speculation, which is already ascertained by the advertiser to be let upon most advantageous terms by the present landholders.—Apply to Mr. John Price, care of Mr. Richard Roberts, Tanhouse, Bala, Merionethshire, North Wales.

Bala, March 16.

ANGLO-MEXICAN MINT.—Notice is hereby given to the shareholders of the original shares in the Anglo-Mexican Mint Company, that 2045 HALF SHARES, of 4/- each, have been TAKEN UP, agreeably to the resolutions passed at the special general meeting, held on the 4th of January, and that the REMAINING 205 HALF SHARES are OFFERED to the said shareholders at a premium of 10/- per share. Those shareholders who wish to avail themselves of the distribution of the said 205 half shares, will be pleased to make their tenders on or before the 20th of March inst., after which date the allotment, on a pro rata scale, will be forthwith made.—Forms of tender are to be obtained at this office.

G. R. LONSDALE, Secretary.

Anglo Mexican Mint Office, 9, New Broad street, March 1.

N.B.—As each certificate represents five shares, no less a number, nor any part of five shares, can be allotted.

REAL DEL MONTE MINING COMPANY.—The HOLDERS of LOAN NOTES of the REAL DEL MONTE COMPANY, are requested to MEET the DIRECTORS at the office of the company, No. 2, Duke-street, Adelphi, on Thursday next, the 23d inst., at One o'clock precisely, for the purpose of considering a proposition to be then submitted for the liquidation of the debt.

By order of the court of directors,

JOHN PHILLIPS, Secretary.

SOUTH CARADON MINE.—ONE 128TH SHARE in this MINE, TO BE SOLD, BY PRIVATE CONTRACT.—Apply to W. Treverry, jun., Mining Agent and Shareholder (from Redruth, Cornwall), 50, Threadneedle-street, London.

FOR SALE, TWO ONE-HUNDREDTH SHARES in the GOGERDDAN MINES, comprising the Big Mine, Darren, and Cwmyos, the celebrated mine from which Sir Hugh Middleton made immense profits. The present workings have just reached about ten fathoms under the old mine, which is very extensive, and promise is held out of immediate profits.—Application to Mr. English, 26, Fleet-street, London.

TWO PORTABLE STEAM-ENGINES—ONE HIGH-PRESSURE, the OTHER a CONDENSER, 10 to 12-horse power each—also TWO BONE MILLS, in excellent working condition.—Ground bone, artificial gypsum, and all other Masses, of the best quality, and at moderate prices, may also be had by applying to John Hunt, Bone Mills, High-street, Lambeth.

FOR SALE, by PRIVATE CONTRACT, on the ROSEWALL-HILL MINE, one and a half-mile from St. Ives, in Cornwall, THREE STEAM-ENGINES, all now only three years ago—No. 1, a 36-inch cylinder PUMPING-ENGINE, 9-foot stroke in the cylinder and 7-foot in the pump, with all wood work complete, including doors and windows and first piece of connection rod; No. 2, a STAMPING-ENGINE, on Sims's continuous cylinder principle—4-horse power. The consumption of coal with this engine never exceeded 24 lbs per horse power per hour; No. 3, a WINDING-ENGINE, 28-inch, double power, Boulton and Watt engine—6-foot stroke, with winding apparatus (iron) complete. The whole of these engines are on the most modern construction, made of the best material and workmanship; are only one and a half mile from a good shipping port, and may be had very cheap.—Applicants to be made to Mr. Nicholas Franklin, of Camborne, to Mr. James Sims, engineer, at Redruth; or to Mr. English, 26, Fleet-street, London. Redruth, Dec. 5.

TO BUYERS OF IRON CASTINGS.—Underground Pipes, or Railway Chairs and Wheels, of all kinds—Piping, or Railway Bars, and Casting—Furnace Bars—Skid Weights—Skid Irons, and all heavy castings.—Portions requiring large quantities, will be furnished with prices.—Apply to George Ogilvie Robertson, 6, Crescent, Minories, London.

HOLLOW AND SOLID RAILWAY AXLES.—The PATENT SHAFT & AXLE TREE COMPANY are prepared to supply either HOLLOW or SOLID AXLES, and, although the former have not yet come into use, the experiments they have tried enable them to state with confidence, that their patent mode of manufacture, which includes Hollow Axles, combined with the use of a superior mixture of iron, will maintain the same superiority of character for their hollow as they have gained for their solid axles, of which latter they have now supplied upwards of 25,000, two only, made in the commencement of the year last, having been recently reported to them as having failed in use.

Brunswick Iron Works, Wednesbury, Staffordshire.

DREDGE'S PATENT IRON BRIDGES.—This economical and powerful system of construction is founded upon the PRINCIPLES OF THE LEVER—therefore, it is adapted for the heaviest traffic of rail and other roads, and for the largest or smallest spans in all situations. It is not half so expensive as timber bridges, and, taking an average of large and small spans on the old principles of suspension, this system admits of the erection of ten powerful bridges for more than 1000 fathoms of material and labour in their construction. The Cotton Bridge, upon this principle, could be erected for £10,000. The principle was first used by the Victoria Bridge Company over the River at Bath, in 1801, in a bridge, 100 feet long and 10 wide. Afterwards, the Government adopted it in five bridges in the Regent's Park, and Sir James Colquhoun, Bart., used it over the Leven, in Scotland; this bridge is 212 feet long and 20 feet wide. Another is erected at Wragby, near Worksop, for G. S. Hartshorn, Esq., and one across the river Frome, for H. Miller, Esq. The elevation, plan, cost, and description of Mr. Hartshorn's bridge is published in the *Advertiser, Engineer, and Surveyor*, No. 80. It is 100 feet long and 12 broad, and its cost was less than the cost of a stone bridge of the same magnitude.

* * * DREDGE will undertake the construction of bridges, and guarantee their stability, and he will take charge in any toll bridges he may erect.

Bath, March 1.

* * * Not quite so much as necessary.

WALKER & CO.'S IMPROVED PATENT HYDRAULIC MACHINES, adapted to all purposes of RAISING and LOWERING PLATES, CHALLENGE THE WORLD TO COMPARE WITH THEM. They consist entirely of cast iron, ironmongery, machinery, machinery, machinery, and machinery.

The movement is rotary, and may be worked by the hand, steam, or other power. A bold, strong, well-made, graceful, and elegant construction, to be distributed to a numerous class, and ready to go to work. These machines vary in power, from one to five horses, and will raise or lower quantity, from 10 to 1000 gallons per minute.—Price, from £12 to £100. The bold man of 100 per cent. a machine to move 1000 gallons per minute, with horse-power or windlass attached—£100. Horse-engine from £12 to £100 per horse-power. The "Hand-Elevator," showing the principle of the patent, and forming a good specimen engine.

The patentee beg to call the attention of the mining districts to the cheapness and efficiency of their machines, which will enable the miner to continue to explore mineral veins in veins and ledges, and porous coal formations or patches; and hence to prove his case, without the enormous expense of raising power. The to-morrow walk which the machine can be removed from place to place to an advantage, will be duly printed by the owner, and thus, added to its rapidity and economy, will lead to many a new discovery, on virgin ground.

Persons applying by letter, should state the distance from the water to the dell, or the quantity required to be raised, and the position where the lift is to be placed.

WALKER and CO.'S IMPROVED SHEEP PUMPS both 12 ft. and 16 ft., and are remarkable for their simplicity and power, the latter being on account that they may be cleaned without removing any part of the apparatus. 12 ft. PUMPS 1200 PUMPS, to 100 ft. and more, with lever or rotary movement, from 40 ft.

Machinery, 1, Crooked-lane, and 2, George-street, Bishopsgate, London.

PARIS AND LYONS RAILWAY.—Capital 62,500,000 francs. (2,500,000), in 300 fr. (20/-) shares. Deposit, 4/- per share.

DIRECTORS.

Mons. T. C. C. Delamare, Director of the Bank of France, Paris—Chairman.

Marys de Bartholomé, Peer of France, Paris.

The Right Hon. G. E. Dawson, 16, Upper Grosvenor-street, London.

Charles Devant, Esq., 42, King William-street, London.

Hardman Parke, Esq., Liverpool.

Comte de Gasparin, Peer of France, Paris.

Rose D. Mangin, Esq., M.P., London.

John Masterman, Jun., Esq., Nicholas-lane, Lombard-street, London.

Baron Monnier, Peer of France, Paris.

Mons. Saunac, Deputy for Dijon, Paris.

Matthew Unsell, Esq., 22, King William-street, London.

With liberty to add to their number.

Bankers in London—Messrs. Masterman and Co., Nicholas-lane, Lombard-street.

Messrs. Glyn and Co., Lombard-street.

Bankers in Liverpool—Bank of Liverpool.

Bankers in Paris—M. Delamare, Martin Didier.

Standing Counsel—F. H. Goldenblatt, Esq., Stone-buildings, Lincoln's-inn.

Engineer—Joseph Locke, Esq.

ON CORAL REEFS, AND THEIR ARCHITECTS.

BY WILLIAM ICKE, F.G.S.

Mr. Ick recently delivered two lectures on this subject, at the Birmingham Philosophical Institution, in the first of which, on introducing the subject, he stated that the structure of coral formations, if closely studied, was well calculated to throw much light upon more than one question connected with the physical history of our earth. The external appearance of atolls, or lagoon islands, was so curious, that no wonder the first seamen who navigated the Pacific Ocean beheld them with astonishment. Vast rings of dazzling white stone, rising abruptly from an unfathomable depth of ocean, the highest points sometimes capped with palm trees and other tropical vegetation, the waves dashing in foam against the outside, while enclosed within was a lake, or lagoon, of calm water, the surface of which was scarcely rippled by the wind. Sometimes these great walls of stone stretched like immense breakwaters, for hundreds of miles, along the shores of continents or large islands, often from eight to ten miles from the land—exceeding in magnitude, beyond all conception, the mightiest works of man; and yet these stupendous piles were the work of creatures which belong to the lowest type of animal existence, whose true position in the organic series is a sort of neutral ground on the confines of the animal and vegetable world; yet, so singular is the organization of these apparently fragile beings, that they thrive best where they are perpetually lashed by the waves of a restless ocean, in the midst of a surf that would dash to pieces the stoutest boat, or break into fragments the hardest rock.—Mr. Ick then explained, by the aid of large drawings, and specimens of various genera of recent corals, from the museum of the institution, the singular, but simple structure of the polyps, which form reefs, and also of the slender corals in the lagoons, and showed the mode in which the calcareous matter was deposited in the genera *fungia*, *acropora*, *madrepore*, *caryophyllia*, &c.; and concluded the lecture by explaining the distinctive characters of the three kinds of coral structures—atolls, barrier reefs, and fringing reefs; showing the advantage of thus classifying them.

In the second lecture, Mr. Ick introduced the subject by taking a rapid survey, by means of a large coloured map, of the vast areas of the earth occupied by coral formations. In the Great Pacific ocean there is a tract, commencing at the southern end of the low archipelago, 4000 miles in length, in which nearly the whole of the numerous islands are of coral formation. In the Indian ocean, besides numerous other islands, the curious groups of the Laccadives, Maldives, and Chagos bank, extending in a line nearly 1500 miles, are all the work of coral polyps. But, perhaps, the most singular of all is the great barrier reef on the eastern coast of New Holland, which extends, with few interruptions, for nearly 1800 miles, at an average distance from the land of between twenty and thirty miles, and in some parts seventy. The whole of this immense structure is composed of coral; and besides these, which rise to the surface of the water, there are known to be many hundreds of reefs that are submerged, many of which are not marked down in charts.

But leaving the existing state of the world (said the lecturer), if we carry back our investigations to the most remote periods of its history, we find the labours of coral polyps among the first vestiges of organic existence imprinted on the rocks. In the Silurian limestone of Dudley (nearly the oldest formation which preserves abundant traces of animal existence) corals are found in such abundance, that we are led to the conclusion that the Dudley Castle hill, Wrens'-nest, Hurst-hill, and the extended ridge of Wenlock-edge, are ruins of one or more great reefs of the ancient sea, which, possibly, like the great barrier reef of New Holland, stretched along the shore of the ancient coast, or large island, on which grew the luxuriant vegetation, the remains of which, washed into the lagoon channel, formed the different coal deposits of the centre of our island. (This view was illustrated by large masses of fossil coral from Dudley, in which the peculiar structure was beautifully preserved.) Above this group of rocks we have what is sometimes called the old red sandstone; but in Devonshire and Cornwall a group of rocks occur, usually considered to be of the same age. These abound with corals, numerous specimens of which were on the table. Above these lies the carboniferous system—in some localities preserving over considerable tracts the coral structure. On this reposes bed of coarse sandstone and clay ironstone, supporting thick deposits of coal; and then beds of variously coloured sandstones, called the new red sandstone. A long lapse of ages intervening in this part of the world, in which, from the breaking up of ancient rocks, by volcanic or diluvial action, copious deposits of silica and alumina prevented the growth of coral; calcareous mud then began to accumulate, in a sea swarming with a new creation of lizard-like forms and ichthyosaurs, plesiosaurs, and the wondrous pterodactyl (or winged lizard), ammonites, nautili, and a host of other marine animals, leaving their skeleton forms buried in the lins. Then began the little polyps to raise their giant structures, and lay the foundations of the extensive group of oolithic rocks. The middle part of this series retains such abundant vestiges of coral structure that it is called the "coral rag." In some places it is a mere mass of corals of the genera *caryophyllia*, *agrisea*, and *astraea*, forming strata fifteen feet thick. In the lower oolite masses of coral form, several feet in diameter, similar to the existing porites on the outside of modern reefs. The oolitic series of rocks occupy a zone, nearly thirty miles in average breadth, which extends across England, from Dorsetshire on the south-west to the coast of Yorkshire, crossing the German ocean, with few interruptions, across the north-west of France, by Charente, through the Jura Alps, across the continent, through Normandy, to the opposite English coast. This great circle encloses the chalk basin on which London and Paris are built; and it is impossible to trace over this band of limestone, broken as it is in its present state, without concluding that it is the remnant of a large atoll, group of atolls, or barrier reef; and the resemblance to a modern reef is carried out even to the most minute particular.

In the museum of the Geological Society of London there are specimens of the calcareous sediment found in the lagoons of existing atolls. This cannot be distinguished in hand-specimens from white chalk, and the mode of its production is curious. Mr. Darwin noticed, at Helsing's Atoll, that two species of fishes of the genus *serranus* (parrot-fish), one inhabiting the lagoon, the other the surf on the outside of the reef, subsist by browsing on the more delicate branching corals; and, after the gelatinous part is extracted for the nutrition of these creatures, the finely ground calcareous matter passes from them in the state of a fine pure white sediment, and settles at the bottom of the lagoon. On opening several of these fishes, their intestines were found to be distended by this chalky matter. Some radiated animals also devour living coral, and the quantity of sediment deposited, layer upon layer, by these different creatures, must be very great; and if a section was made through the dried sediment of a large lagoon, the resemblance to a chalk basin would be strikingly apparent. If this view be correct, we should expect, in some instances, to find beds of chalk-like limestone among the more ancient formations; but the colour of a calcareous or other sediment will depend on local circumstances. If rivers bring down earthy sediment from high lands into the lagoon channel of a barrier reef, the pure white sediment will be coloured by oxide of iron, or other materials; and if carbonaceous sediment is brought down in considerable quantity, the limestone may be even black, as is the case at Kilkenny, in Ireland, some parts of Yorkshire, and other localities. Although we have no trace of chalky deposit among our English rocks anterior to the carboniferous period, Messrs. Murchison and Veroy have shown that, in Russia, in the carboniferous system, there is a calcareous bed, extending over a district of not less than 1000 miles, which is not only white and friable, like chalk, but the strata are divided by bands of flint, which are sometimes concretions containing corals. This bed, in some places, abounds in a bivalve shell, called *Producta*, a genus characteristic of the earlier deposits. The surface of most of the reefs of the Pacific ocean swarms to such an extent with shell, and smaller radiated animals, that it is next to impossible to walk over some parts without being irritated by their spines; in some beds of the chalk, it is well known, the fossil remains of several genera of these creatures are found in great abundance. The fossils of the chalk are, in the majority of cases, formed on a nucleus of sponge. In the lagoon channels at Bermuda, and other places, where the water is shallow, sponges grow in profusion.

Mr. Ick then showed that the mode in which the beds of the oolitic series had been formed, with the basis of Oldbury and Kimmeridge clay interposed, was similar to what may sometimes be observed in modern reefs; after the period in which the partial deposit of Portland oolite took place, he thought it probable that a reef was formed, on which swarmed the *caryophyllia*, *astraea*, and other radiata of the chalk, the remains of which reef is only now found in a few spots; it exists, possibly, in the island of New Zealand, where there is a rock of rigid yellow stone, formed by an aggregate of corals, which retain their structure as perfectly as any existing corals. The fossils of this formation—which is quarried, at Favers, to the depth of forty feet—the oolitic, and most of the other fossils, agree with those of the chalk.

To complete the resemblance between the chalk basin, and a modern coral formation, we have, in England, to the west of Kent, most interesting vestiges of a tropical island, in the sacred lagoon of the solstitial reef, on which crowded gigantic herbaceous plants, lichens, and other epiphytes. From the size of the leaves of this great plant, called the iguanodon, the creature must have been seventy feet in length. The vegetation was all of a tropical character; the genera *cycas*, *ammonia*, and *equatoria*, allied to *arumaria*, are found in a fossilized state. All Portland lichens, and some other plants, a species of the aquatic vegetable soil is preserved, from twelve to eighteen inches thick, in which the trees are standing erect, as they grew.

Mr. Ick then entered upon that part of the subject which gives the study of coral reefs so much interest, in a geological point of view. It had been maintained that the small polyps which formed reefs were unable to exist at a greater depth than about 200 feet; yet, very soon the evidence of many reefs, the sea were found to be subtidal. The difficulty was, to know how a wall of coral—rising from a depth, in some cases, of more than 200 feet—could be raised. Mr. Darwin's theory appeared to be the only one which explained the difficulty—namely, that, while the small polyps were building the

ground beneath was sinking; and Mr. Ick showed that, while the coral reefs, in a long band across the Pacific, marked an area of subsidence, a corresponding, and almost parallel, tract existed in South America, from Terra del Fuego, along the ridge of the Andes, to Mexico, where the land was, under the eyes of the present inhabitants, rising; and that corresponding lines of subsidence and elevation were apparent in the Indian ocean—the first being marked by the coral groups of the Laccadives, Maldives, and great Chagos bank, the latter by the volcanic district in the region of the equator; and that we were forced upon the conclusion that, while immense areas of our earth's surface are being elevated above their former level, corresponding spaces, no less extensive, are gradually subsiding; that the crust of our globe is undergoing a series of oscillatory movements, in the progress of which most important changes may be effected in its physical condition, on the distribution of land and water, on its climate, and the existence of organic beings; and that these simple coral polyps, urged by the instinct peculiar to their being, have constructed a series of geological chronometers, which enable us to mark the epochs of change in the history of our planet.

These lectures were illustrated by models and drawings of the most remarkable coral formations, in ground plan and section, by geological maps, by large drawings of corals, to explain the generic distinctions, and by specimens of recent and fossil coral, from the museum of the Philosophical Institution.

INSTITUTION OF CIVIL ENGINEERS.

MARCH 14.—THE PRESIDENT IN THE CHAIR.—The two first papers read were by Mr. Macquorn Rankine, of Edinburgh, and were sent preparatory to his election as an associate of the institution. The first described, very clearly, a practical method of setting out railway curves, with precision and dispatch, by a method, which depends on the well-known principle, "that the angle subtended at any point of the circumference of a circle, by a given arc of that circle, is equal to half of the angle subtended at the centre, by the same arc." The operation of this method was shown to be practically superior, from its correctness and simplicity, to any other now in use among surveyors.

The second paper described an invention, by Lieut. Rankine, for suiting the action of the springs of railway carriages to variable loads; it consists in substituting, for the usual shackles or rollers, a small convex plate at each end of the spring, so adjusted, that, when the carriage is not loaded, it bears on the extreme end, giving the greatest degree of flexibility, but, owing to the convexity of the plate, the more the load is increased the nearer does the point of bearing of the plate upon the spring approach to the centre—thus giving it the necessary amount of stiffness to resist the pressure; the effect of the plate being virtually to diminish the length of the spring in proportion to the load, and thus to increase its strength in the inverse ratio of its length, and its stiffness in the inverse ratio of the cube of the same quantity. The experiments, and the practical use of this contrivance, on the Edinburgh and Dailkeith Railway, fully proved its utility.

The paper by Mr. Sims, "On the Application of Horse-power to Raising Water," gave the results arrived at from the use of a hundred horses, working during stated periods, daily, at eleven shafts, drawing water by barrels, with "gin rolls," from an average depth of 104 feet. The shafts were sunk in order to enable a drift-way to be pierced, in the direction, and at the level of the base, of the Saltwood Tunnel, on the line of the Dover Railway. It runs through the lower greensand, which was so saturated with water that it assumed the character of a quicksand, and it became necessary to use the most strenuous efforts to draw off the water, and enable the miners to form the drift which was intended to operate as the natural drainage. The length of time during which the horses were employed enabled Mr. Sims to make extensive experiments, which were carefully tabulated, with all the attendant circumstances, and the result appeared to be that—rejecting all forced work—horses, working constantly for three hours, raised 32,943 lbs. one foot high in a minute; while, if they were forced to work constantly for six hours, they could only raise 24,360 lbs. one foot high in a minute. These results differ materially from the data which have been hitherto received, inasmuch as the eight hour experiments of Boulton and Watt give 33,000 lbs.; Tredgold, 27,500 lbs.; Sauvage, 34,000 lbs.; and Desaugier, 44,000 lbs. Mr. Sims found that, if the horses were worked a longer time, or at a greater speed, they soon died; but that, with an average speed, and frequent relays, they bore their work well. From the regularity and the extent of his experiments, he assumed them to be correct, although they differed from those which had hitherto been considered standard authorities on the subject.

The papers announced to be read at the meeting of Tuesday, March 21, were—"Description of the Automaton Balance, invented by Wm. Cotton, Esq., Governor of the Bank of England," by T. Oldham, Assoc. Inst. C.E.—"Description of a Smelting Furnace, and new Filling Barrow, in use at the Butterley Iron Works, Derbyshire," by S. C. Kroefft, Grad. Inst. C.E.

NEW MOTIVE POWER—THE CARBONIC ACID ENGINE.

Great as have been the results of the discovery of Watt, and the subsequent improvements on the steam engine, the advantages obtained by commerce and the arts from this gigantic power are purchased at a great expense—principally in the consumption of fuel; on the Great Western line, the item of "coke" alone amounts to 1000d. per week. From the simple known fact of heat increasing the volume of any of the elastic gases to a great extent, and giving, in that expansion, an enormous pressure, many attempts have been made to take advantage of this law of nature, to establish a power far exceeding that of steam, and obtainable at a mere trifling expense. Dr. Faraday, by a long course of experiments on the liquefaction of gases, obtained a most important and detailed knowledge of their various properties, powers of extensibility, and the pressure exerted under different degrees of heat; and it is upon the properties of carbonic acid and ammonia gases that the principle of this new motive power (invented by Isham Bagge, Esq., of Cheltenham) is based. Carbonic acid is an invisible elastic fluid, half as heavy again as atmospheric air (100 cubic inches weighing forty-seven grains and a fraction), expands by heat, and can be liquified by continuing the generation in close and strong vessels, at a temperature of 32° Fahrenheit, until the pressure of its own atmosphere accomplishes it. Twenty volumes at this temperature occupy twenty-nine volumes at 60°, and exert a power equal to 1050 lbs. per square inch; and the liquid acid, on expanding to gas, increases its volume 443 times. The mechanical properties of the ammoniacal gas are closely allied to those of carbonic acid gas, and, in undergoing a similar change, it occupies about 1040 times its original bulk. When one volume of carbonic acid gas is mixed with two volumes of ammoniacal gas both lose their elastic properties, and become a white solid (carbonate of ammonia); if water be applied they will condense in equal volumes. By the separation of a volatile base by a fixed acid a definite salt is obtained, which, on exposure to heat, gives off the volatile gas, and leaves the acid behind; thus a continual decompositon, and re-combination goes on, giving out immense power, and without any loss of material—the products always being the exact chemical amount used at the commencement of the process. Upon this principle Mr. Bagge's invention is based; and we hope, in a future number, to be enabled to give an accurate and clear description of the mechanical arrangement of the engine for bringing this power into practical use.

SUPERIORITY OF IRON OVER LEADEN PIPES.

The injurious effects of lead, when in contact with an acid, on the constitution of animals is very generally known, and yet we have no cause in large towns, lead pipes for the conveyance of water in our habitations. The more pure and bright the water is, the more carbonic acid does it contain; and this, coming in contact with the limpid surface of the pipe, forms a negative poison—the carburets of lead. On an analysis of some water from one of the departments of the royal establishments (which was presented for the laboratory of the Royal Polytechnic Institution for the purpose) being made, it was found that in the first sample, which was taken from the pure spring, the water was perfectly free from any trace of lead. This spring, being at some considerable distance from the place where it is required (viz., the kennel of her Majesty's hounds), it is conveyed thence through pipes of lead; on the second sample (taken, taken from the pipe) being submitted to analysis, the quantity of lead therein amounted to 1-1/2 grains, or approaching 1/4 grain of carbonate of lead to the imperial gallon of water. There is, therefore, strong ground for presuming that the disease, called "hounds' poison," is a sporting physiologist, and which now rages amongst the hounds there, is caused by the quantity of lead taken into the stomach of the poor animals; and what gives us a greater desire to prevent such affliction to the subjects, is the fact, that not only the canine race, but the human also, are sufferers, as in more than one case a species of paralysis, and effects similar to the painter's cholic, has attacked the attendants of the kennel, one of whom [we believe one of her Majesty's whippets] is now suffering from it. Stone, iron, &c., are all harmless for exterior, or minute parts of water, and should always be used in preference to lead, and the only advantage in using the latter appears to be its flexibility, rendering it a little easier in bending angles, curves, &c., when being laid down, than iron; but where no importance is attached to the health of the community, this trifling reason can have no weight. It would but a few prominent examples in the use of iron pipes from the mains to the houses, and these examples made known and properly appreciated, to establish a complete substitution of iron for the old fashioned, but injurious system, of lead.

Mr. Ick then entered upon that part of the subject which gives the study of coral reefs so much interest, in a geological point of view. It had been maintained that the small polyps which formed reefs were unable to exist at a greater depth than about 200 feet; yet, very soon the evidence of many reefs, the sea were found to be subtidal. The difficulty was, to know how a wall of coral—rising from a depth, in some cases, of more than 200 feet—could be raised. Mr. Darwin's theory appeared to be the only one which explained the difficulty—namely, that, while the small polyps were building the

COAL MINING OPERATIONS—No. IV.

CAUSES AND MEANS OF PREVENTION OF ACCIDENTS.

Having thus treated on the various subjects mentioned at the commencement of the report, the committee enter on a summary of the general conclusions arrived at, referring to the body of the report for the detail and precise manner by which they have been elicited and are supported, but having given each in its proper place as we proceeded, it is needless here to recapitulate them. The report concludes with an appendix, divided into seven parts, distinguished by letters from A to G inclusive. Appendix A is a description of Mr. Martin's plan of ventilation, in which is recommended the working of a mine in squares of half a mile each side, or two miles round the four sides; the up and down cast shafts to be at two of the opposite angles, and, by a peculiar mode of working, it may be safely accomplished, without either trap-doors, or boys to watch them, or inducing men to work by means of a pretended safety-lamp, both of which have been causes of most disastrous explosions. Appendix B is a description of a plan of ventilation by Mr. Fourness, of Leeds, which he effects by a powerful fan of peculiar construction, instead of the furnace; the latter, he asserts, is never sufficiently powerful, and if it was made so, it would, in connection with the sulphur, suffocate the men, and eventually set fire to the upper shaft. Appendix C contains some minutes of circumstances connected with explosions, by T. J. Taylor, Esq., of Marske.

1. Tension of Fire-damp in Mines.—On this important subject the author states he had long believed that the majority of great explosions is due to sudden issues of gas pent up in a high state of tension, and against which, therefore, no system of ventilation, or dilation, now in practice, can adequately guard. A few facts are mentioned, in illustration of the sudden and violent discharge of fire-damp; at Haswell Colliery an eruption took place under peculiar circumstances—the sectional area of the drift was thirty-six feet, the quantity of air circulating in the drift was 9760 cubic feet per minute, and the velocity 420 feet per second. The bellow heard a noise all at once, similar to a rush of water, from the rapid discharge of the gas, fortunately the mine was being worked by safety-lamps, and no explosion took place. An officer, on examining the return channel, found it foul 310 yards back from the face; thus not less than 4000 cubic feet of hydrogen must have been discharged at this eruption, and yet no trace of it were to be found after half an hour, and this, in some measure, accounts for the obscurity which so often hangs over the immediate cause of pit explosions. On the 30th September last, the master warden, John Harrison, was at work in the return air-course, where the current was traversing towards the upper shaft, after circulating through the whole of the workings; he had two safety-lamps, one of Stephenson's, the other a Davy, hung on props near him; after working a short time, the Stephenson lamp went out, which caused his attention, and he saw that the Davy was filled with flame, showing that he was in the midst of an atmosphere filled to the firing point, and that it had suddenly become so, as there was nothing of the kind when he came there; he quitted the place, and made arrangements for the safety of the men in the mine, but returned in about twenty minutes, when he found the atmosphere free from admixture with fire-damp; but they were not successful, as neither crack or cavity could be discovered. There has not yet been any gauge of the tension of fire-damp under the circumstances, but we know something of the tension it is capable of assuming, where it forces its way through water in drowned shafts, as it must then overcome the vertical pressure of the water opposed to its issue. The writer had an opportunity of examining very closely one of these water-blasts at the Percy Main Basin, in March, 1840, and which, according to his calculation, discharged 12,600,000 cubic feet of gas in sixty-eight hours, being considered as expanded from its compressed proportions, to the volume it would assume at the ordinary pressure of the atmosphere.

2. Loss of the Diffusion of the Gases.—From his investigations on this subject, Mr. Taylor considers that sure calculations cannot be made on this subject, as there are, in all cases, practical qualifications which render any laws on the subject unavailable.

3. Intermittent Nature of Pit Explosions.—It has been observed that great explosions are not simultaneous, but intermittent; which is attributed, in part, to a communication with different reservoirs which are fired in succession, and it is still an interesting question, what is the cause of the cessation, and then of the renewal of the explosion?

4. The Nature of the After-damp.—As nitrogen appears to be the main agent of destruction, one circumstance worthy of investigation, is the cause of the peculiar, and not unpleasant odour of after-damp—a faint smell like ripe apples—air forced from the lungs of a man, who lived many days after the accident, had this odour.

Appendix D is an analysis of a piece of iron pyrites found in the Tyne and Wear coal mines, which gave, in 100 parts—iron, 51-00; sulphur, 42-00; insoluble coal, 7-00. Appendix E is a list of all the known explosions and inundations which have taken place since 1650, with the number, when ascertained, of lives lost; those by inundations from bursting in old workings, show the necessity of a regular plan of registration. Appendix F treats of accidents in coal mines in Belgium, from which it appears the number of accidents in the provinces of Hainaut, Liège, Namur, and Luxembourg, from 1821 to 1840, was 1450, producing 3145 deaths. The number of men employed, on an average, during the above period, was about 35,000. For the relief of the sufferers and their families, a fund is raised by a subscription of less than 1/2d. in the £, on the wages of the workmen, the proprietors subscribing an equivalent sum to their men, sums granted from Government, and donations of private individuals. Appendix G is a memorial, by M. Jaro, read to the Royal Academy of Paris, in 1789 (before alluded to), it consists of observations on the circulation in mines, and the means best to be employed in maintaining it. It is interesting, principally, from being the first really scientific production relating to proper ventilation of mines, and though it gives many useful practical ideas, it would not be considered data to be acted on in the present day. Here the report ends, and we have, according to our promise, given the most important part of this interesting document, thus placing before our readers, who may not have availed themselves of a copy, the results of the indefatigable and humane labour of, perhaps, the most useful committee for a particular purpose that could be, or ever has been, appointed, involving, as the subject does, the physical comfort, and moral improvement of a large portion of our labouring population, necessarily employed in a most laborious and dangerous occupation—the advancement of science as related to mining, and, in a national point of view, the economical attainment of some of the most important descriptions of the staple produce of the kingdom.

EMPLOYMENT OF FEMALES IN COLLIERIES.—In the House of Lords, on Tuesday last, the Duke of Richmond presented a petition from the females employed in Admiral Sir P. Durham's collieries, in Fifeshire, comprising of the operation of this Act, and praying for an amendment of it. The noble Duke also presented petitions to the same effect from the workmen employed at Aberdour, Fifeshire, the Carron Company's works, and in the Earl of Elgin's collieries, in Fifeshire.

DISPUTED RIGHT TO MINERAL PROPERTY IN IRELAND.—We understand that an outrage occurred in the colliery districts of the Queen's County, a few days since, arising out of a "family dispute" as to the possession of a valuable coalmine. It appears that Mr. Hermon, the gentleman who claims to be the owner of the mine, made a lease of the property entirely in his own name, while his brother and sister, who are advised that they possess an equal title, refused to admit the tenant. On Sunday last, forcible possession was taken on the tenant, with the aid of about 200 persons, provided with sledges, hatches, &c. The possession of the engine house was endeavoured to be obtained by Mr. Hermon's brother-in-law, but the doors were broken open, and he was dragged out, and was only saved from serious violence by the interference of some gentlemen of the neighbourhood, who were present. Informations have been received against the parties who are stated to have taken violent possession of the property in question, without any legal title.

ARTISAN WELL AT BRISTOL.—Since our last notice of the Artisan well at the end of the Chain pier, the workmen have succeeded in getting about eight feet below the solid bed of gravel, a foot parallel to Bright's, which some time before had reached their further progress, and fresh work, no wider only slightly back, has been found. Above this bed of rock the chalk was separated about three feet by thin strata of flint; but beneath it eight feet of solid chalk have been passed without meeting any other substratum. This bed of rock is supposed to be the same as was passed at a depth of seventy feet, in sinking some wells on

THE MINING JOURNAL.

SMOKE NUISANCE—ECONOMY OF FUEL WITHOUT THE NUISANCE FROM SMOKE, by C. W. WILLIAMS'S ARGAND FURNACE.

The principle of this furnace consists in the mode by which the air is introduced to the gaseous matter evolved from coal, whereby a more perfect combustion of the constituents is effected, the process being conducted on true chemical principles, as explained by Mr. Williams, in his *Treatise on the Combustion of Coal*. A furnace, constructed on this principle may, by permission, be daily seen in action at the Water-works, Soho-street, and Manchester Railway Station, Edge-hill, Liverpool. For further information, apply to Banks and Co., agents, 2, Town-hall-buildings, Cross-street, Manchester.

CAUTION.—SMOKE PREVENTION.—MR. JOSEPH WILLIAMS.

The public have already been CAUTIOED, by the ADVERTISEMENT OF BRICKS AND CO., (see the *Mining Journal*, the *Advertiser* and other Liverpool papers), AGAINST THE IMPOSITION PRACTISED BY MR. JOSEPH WILLIAMS OF THIS TOWN, who, having no patent of his own, has, under colour of applying the patent of Mr. Kurtz, been introducing MODIFICATIONS AND INFRINGEMENTS OF THE PATENT OF MR. C. W. WILLIAMS, for the MODE OF INTRODUCING AIR TO FURNACES AND THE PREVENTION OF SMOKE.

In his late advertisement (see the *Mining Journal*, and the *Advertiser* of the 21st December), Mr. Joseph Williams states as follows:—"That he is the acting proprietor of Kurtz's patent," and the fact, that the patent is the smoke-consumer which he describes it to be, was acknowledged by Mr. Andrew Kurtz himself on board the *Urgent*. To this allegation Mr. C. Williams states, on the authority of Mr. Kurtz himself, that that gentleman was asked to go on board the *Urgent*, the object being, actually, to convey an impression that Mr. Kurtz was connected with what was done to the furnaces of that vessel, and sanctioned the same; that Mr. Kurtz was then, for the first time, informed of what was done on board the *Urgent*, under Mr. Joseph Williams's directions, and of the apparatus behind the furnace bridges for regulating the size of the off-takes through which the air is admitted, and that he (Mr. Kurtz) at once disavowed the same, as not forming any part of his patent; that the plan adopted in the *Urgent*, as regards the situation of the fire-bars, was also subsequently altered—thus departing still further from Mr. Kurtz's patent; and that, as far as the plan of apparatus on adopted by Mr. Joseph Williams being "acknowledged by Mr. Kurtz," such assertion is not only false, but directly the reverse of the fact.

It is hereby further stated, that the mode of admitting the air adopted by Mr. J. Williams, and by which he attempted to deprive the Admiralty and the public, under pretence of having the patent of Mr. Kurtz, is no way conformable to that patent, and that neither Mr. Joseph Williams, nor any one connected with him, has a patent for the same—such being a direct infringement of Mr. C. W. Williams's patent. (Liverpool, Jan. 7.)

CHURCH OF ENGLAND LIFE AND FIRE ASSURANCE, TRUST AND ANNUITY INSTITUTION, 5, KING WILLIAM-STREET, CITY.

EMPOWERED BY SPECIAL ACT OF PARLIAMENT, AND UNDER DISTINGUISHED FATHONAGE, LAY AND CLERICAL.

LIFE.—This Institution adopts both the Mutual and Proprietary principles of Assurance, and combines, in one establishment, all the advantages presented by the various Metropolitan Assurance Companies, with Rates of Premiums as low as are consistent with security.

FIRE.—The Premiums for Assurance against Fire are charged at the usual moderate rates, with a REDUCTION OF TEN PER CENT. on the RESIDENCES and FURNITURE of CLERGYMEN.

The receipts for the renewal premiums, due at Lady-day, are now ready for delivery at the offices in town, and at the respective agencies throughout the United Kingdom.

TABLE OF LIFE RATES.

Age.	Mutual Scale.	WITHOUT PROFITS.			
		Equal Rates.	First Seven Years.	Second Seven Years.	Remainder of Life.
20	£1 12 4	£1 12 11	£1 2 0	£1 15 0	£1 4 0
25	2 5 10	2 2 7	1 6 0	2 7 0	2 18 0
30	3 6 6	3 2 0	1 10 0	2 16 0	3 10 0
35	4 12 4	4 4 11	3 0 0	4 10 0	0 0 4

Prospectuses, the necessary forms, and every requisite information for effecting assurances, may be obtained on application at the office, or by letter, addressed to the Secretary.

* * * All applications respecting agencies to be addressed to the Secretary.

EUROPEAN LIFE INSURANCE COMPANY, No. 10, CHATHAM-PLACE, BLACKFRIARS, LONDON.

Established, January, 1842.

President—Sir JAMES RIVETT-CARNAC, Bart., Rock CHIEF, Lymington.
Vice-President—GEORGE FORBES, Esq., 7, Fitzroy-square.

DIRECTORS.

Thomas Henry Call, Esq., 1, Mount-street, Grosvenor-square.
John Brett Cornewall, Esq., 6, Devonshire-street, Portland-place.
Thomas Harding, Esq., 21, Eaton-square.
John Greathead Harris, Esq., 7, Old Palace-yard.
William Paxton Justice, Esq., 16, Cock Lane, Bloomsbury-street.
Rev. Philip H. Broton, 10, Charlotte-street, Bedford-square.
William Sergeant, Esq., Treasury Chambers, Whitehall.
Frederick Silver, Esq., 19, Janson-street, Brompton-gate.
John Stowes, Esq., 12, Portland-square.
John Thynne, Esq., 8, Foley-place.
George James Sullivan, Esq., Wilbury-park, Amersham, Bucks.

FACULTIES are offered by this long-established society to suit the views and the means of every class of insured. Premiums are received yearly, half-yearly, or quarterly—or upon an increasing or decreasing scale. An insurance of £100 may be effected on the ascending scale by an annual premium, for the first five years, of £10 at the age of 20, £1 12 4 at 25, £1 15 0 at 30, £2 2 7 at 35, £3 2 0 at 40, and £4 4 11 at 45; one half only of the usual rate, with interest on the remainder, will be required for five or seven years, the other half to be paid at the commencement of the assured. The interest for life participants equitably in the profits realized.

A liberal remuneration is allowed to solicitors and agents.

DAVID FOUGG, Secretary.

No. 8.—Agents are wanted in towns where none have yet appointed.

BRITANNIA LIFE ASSURANCE COMPANY, 1, PRINCE-STREET, BANK, LONDON.

This Institution is empowered by special Act of Parliament (4 Vict., cap. 11.), and so constituted as to effect the business of life assurance, in their fullest extent, for policy-holders, and to prevent greater facilities and accommodation than are usually offered by other companies. The decided superiority of the plan, and its obvious public advantage and support, have been proved uncontested, by its extensive and unopposed success.

Assurances may either be effected by parties on their own lives, or by parties interested therein on the lives of others.

The effect of an assurance on a person's own life, is to create, at least, a property to revenue, which can be no other man's realized. Take, for instance, the case of a person of the age of thirty, who, for the payment of £1,000, to the Britannia Life Assurance Company, can insure at even premium of a reasonable property corresponding to £1,000, without regard to the condition of his continuing the same pay, and gradually during the remainder of his life—a condition which may be fulfilled by the mere saving of eight shillings weekly in his expenditure. Then, by the exertion of a very slight degree of economy—each, indeed, as can easily be left as an improvement. So near at once reaches a capital of £1,000, which he can keep, or dispose of, in any way he may think proper.

Detailed prospectuses, and every requisite information as to the mode of effecting assurances, may be obtained at the office.

PETER MORRISON, Resident Director.

A Board of Directors situate daily, at two o'clock, for the dispatch of business.

DISEASED AND HEALTHY LIVES ASSURED, MEDICAL, INVALID, AND GENERAL LIFE OFFICE.

5, FAUX-MAILL, LONDON.—Capital £50,000.

This office is provided with very accurately constructed Tables, by which it can assure DISEASED LIVES on equitable terms.

The Rates Prohibited by re-arrangement of the modes of payment healthily.

THE RECENT ANNUITIES granted on Invalid Lives—the amount varying with the particular disease.

Details of prospective Policies varied at equitable rates.

HEALTHY LIVES are assured at lower rates than at most other offices.

F. G. P. NEILSON, Actuary.

COMPOSITIONS FOR WRITING WITH STEEL PENS. BIRMINGHAM'S WRITING FLUID.

These compositions, which have so remarkably simplified the use of the Steel Pen, are brought to very great perfection. Being now easy to write with, more durable, and in every respect preferable to the ordinary ink. In some instances they have been practised. They consist of a thin fluid, dissolving into an infinite black colour, a pale composition being blue, remaining black a second hand full of the common composition, but never red. A brilliant crimson red, the common writing a reddish brown, consisting of a pale crimson. Also a new kind of writing ink, for green and indigo, suitable for preserving ink from evaporation and dust. H. D. Smith has now invented of the above articles are conveniently being prepared at "new composition." Both, we apprehend, will be found to bear every name and name. Prepared by Messrs. Thompson, the Inventor, 18, Strand, Great-cross, Birmingham, London, and sold by all dealers and booksellers.

See also DRINK, equal mixture, much reduced, price 1s.

MODERN DOMESTIC MEDICINE, a Popular Treatise, &c.

Including the composition, uses, and most efficacious treatment of diseases, with a collection of approved prescriptions, management of children, cases of convalescence, &c. Introducing a comprehensive guide for the singer, dramatist, and orator, the R. & W. LIBRARY, 10, Old Bailey. It is to assist the reader of grand addresses to find, and interpret, the author's exact words against compositions and speeches, thus assisting in preventing errors in himself, and in assisting him in his oratorical compositions. The importance of this work lies in the precision to our readers it is only to be expected a general interest the whole nation. (London: Printed for R. & W. LIBRARY, 10, Old Bailey.)

In addition to the present composition, there are now published, in this, price 1s., three volumes, medicine, surgery, and domestic.

On the IMPRAESES OF FEMALES, & Treatment, illustrating their composition, uses, properties, and treatment, with numerous cases, and a medical history, including the diseases and management of pregnancy and birth in—

—and a series of lectures, addressed to those who are ill, and to those who are well, according to the wishes and abilities of the author. (London: Printed for R. & W. LIBRARY, 10, Old Bailey.)

STEAM TO CORK, CALLING AT PLYMOUTH.

—The ST. GEORGE STEAM-PACKET COMPANY'S splendid and powerful steamship HERCULES, 600 tons and 270-horse power, Capt. S. S. MOULE, will sail from OFF ST. KATHERINE'S DOCKS, for the ABOVE PORTS, on SATURDAY, the 25th inst., at EIGHT O'CLOCK in the morning.—Further particulars afforded on application at the Spread Eagle, Regent Circus, Piccadilly; 56, Haymarket; 41, Regent-street; or the Steam-Packet Office, 127, Leadenhall-street.

* * All heavy goods for shipment to be sent to the St. George Steam Wharf, Lower East Smithfield.

NOTICE.

More extensive premises than those lately occupied being found necessary, the establishment of the *Mining Journal* is REMOVED TO 24, FLEET-STREET (opposite St. Dunstan's Church).

THE MINING JOURNAL, Railway and Commercial Gazette.

LONDON, MARCH 18, 1843.

* * Parties desirous of ordering the *Mining Journal*, can do so, either direct to the office, or through any news-vendor or bookseller in town or country. Notices of irregularity in its delivery are requested to be forwarded to the office, where every attention will be made to rectify the cause of complaint.

The important case of the Househill Coal and Iron Company and others, appellants, and JAMES BRAUMONT NEILSON and others, respondents—originating in an action for damages for infringement of the Hot-blast Patent—has been frequently under notice by the proceedings pending in the House of Lords, which, so far as the appeal is concerned, have been brought to a close by the decision of their Lordships—which is, in effect, that, from misdirection on the part of the learned Judge before whom the cause was heard, the question must be again tried, by another jury; thus leaving the decision yet to be arrived at, as to the claims of Mr. NEILSON, as patentee, and thereby involving a considerable expense as well as inconvenience to the parties interested in the suit.

It is, doubtless, of the first moment, in this country, where lawyers are to be found in shoals—and who must, necessarily, have therewith on which they can exist—that we should have various courts of judicature and appeal, to which the disappointed suitor may have recourse, as a last resort; and experience has hitherto shown that, on application to the superior courts, in nine cases out of ten, where the slightest grounds are adduced to warrant the judgment of the Court, cases are again referred back, or, at least, so procrastinated, as to militate much against the interests, if not to effect the ruin, of the parties to the suit; while the legal advisers well fill their purses at the cost of their clients.

We are led to make these observations from the nature of the edict of their Lordships who, "one and all" (as they would say in Cornwall), without pronouncing an opinion on the merits of the case, have decreed "that the case must be tried by another jury;" because—Can our readers even guess the grounds of the cause assigned? We should think not. Let us then record them in the words of the Lords "learned in the law," who pronounced judgment on the occasion:

The LORD CHANCELLOR, in expressing the opinion he entertained, and on which his judgment was formed, stated, "that if it is proved distinctly that a machine of the same kind was in existence, and was in public use—that is, if use, or if trials, had been made of it, in the eye and in the presence of the public—it is not necessary that it should come down to the time when the patent was granted. If it was discontinued, still that is sufficient evidence in support of the prior use, so as to invalidate the letters patent. If it is discontinued—provided it has been once in public use, and the recollection of it has not been altogether lost—if it has been once publicly used, it will be sufficient to invalidate the letters patent, although the use may have been discontinued at the time when the letters patent were granted."

Having thus pronounced the opinion entertained by his Lordship, as being at variance with that of the presiding Judge at the hearing of the cause in the Court of Session, Lord BROUGHAM expressed his full concurrence with the view taken by the learned lord on the wool-sack; and, in the course of his observations, stated that, the law having, in the opinion of their lordships, been *mistaken* by JOSEPH TULLOLY WATRON.

A few copies only of this work are offered for sale, and may be had, price 1s., or Mr. Weale, publisher, in, High Holborn, or Mr. Watson, in, Threadneedle-street, London; or of Mrs. Bond, Bookseller, Threadneedle-street, London.

It contains very valuable and interesting information; and every one connected with the mines of Cornwall would desire to possess it.—Cornwall Royal Gazette.

ILLUSTRATED SCIENTIFIC PERIODICAL.—On the 1st of APRIL, will be published, No. CXVI., conjugated series, of NEWTON'S LONDON JOURNAL OF ARTS AND SCIENCES.—CONTENTS.—Samuel Hall's Improvements in Boilers and Furnaces.—Two patents—Judd's Improvements in Furnaces; three patents—Nasmith's Machinery for Forging and Stamping Iron—Description of the American Excavator—with many other interesting novel inventions and scientific information.—Published monthly, price 1s. 6d., at the Office for Patents, in, Chancery-lane, and Town-hall-buildings, Manchester, Sherwood and Co., and Sampson, Marshall, and Co.

Complete sets of the present series may be obtained, price £15.

A DICTIONARY, Practical, Theoretical, and Historical, of COMMERCE and COMMERCIAL NAVIGATION.

By J. R. MULLUCH, Esq.

The NEW SUPPLEMENT, containing the New Tariff, and other important articles, separately, £1, sewed.

London: Longman, Brown, Green, and Longmans.

A COMPENDIUM OF BRITISH MINING, with STATISTICAL NOTICES of the PRINCIPAL MINES in CORNWALL, with the HISTORY and USES of METALS, and a GLOSSARY of the TERMS and USAGES of MINING.

By JOSEPH TULLOLY WATRON.

A few copies only of this work are offered for sale, and may be had, price 1s., or Mr. Weale, publisher, in, High Holborn, or Mr. Watson, in, Threadneedle-street, London; or of Mrs. Bond, Bookseller, Threadneedle-street, London.

It contains very valuable and interesting information; and every one connected with the mines of Cornwall would desire to possess it.—Cornwall Royal Gazette.

IMPORTANT PATENT IMPROVEMENT IN CHRONOMETERS AND WATCHES.—E. J. DENT, of STRAND, who obtained the high distinction of receiving the Government Reward for his unparalleled performance of the best chronometer ever exhibited to twelve months' public trial, begs to acquaint the public that the MANUFACTURE of his WATCHES, CHRONOMETERS, and CLOCKS, is SECURED to him by THREE SEPARATE PATENTS, respectively granted in 1839, 1840, and 1842.—Silver Lever Watch, jewelled in four holes, in gold cases, £1 12 11 each.—Gold Horizontal Watch, with gold plate, from £1 12 11 to £1 17 11 each.—Dent's "Appendix" to his recent work on "Time-keepers" is now ready for circulation.

NOTICES TO CORRESPONDENTS.

THE MINING JOURNAL is regularly published about Two o'clock on Saturday afternoons at the office, No. 26, FLEET-STREET, where a copy may be obtained, and there is no reason for scruples in its supply, or loss, other than may arise on the part of the agent through whom it is ordered; but, as respects its transmission to country subscribers, the same is shared with the Post-office authorities.

JAMES C. MUNKE.—A long report of this case has been forwarded to us, with a particular request for its insertion; but what good would result from our complying we are at a loss to know. It was merely a quarrelsome dispute, such as often occurs in large establishments, and, in our opinion, should have been settled without going into court; we shall not, therefore, send our notices to the publication of state meetings which would inevitable widen the breach between parties whom we would rather conciliate.

T. M.—Bristol.—Answered by post.

E. B. S.—Borden Club.—Our reporter attended at the meeting of the United General Life Company, as requested, but was refused admittance, on the plea of being a private company, and that the public had, of course, the absolute right to it; and nothing to do with their transactions.

H. H.—B. J. James's shop!—We should have been happy to comply with the request of our correspondent, had the subject been in any way connected with the objects of our journal. Perhaps "H. H." could not imagine the connection connecting him employed in iron or steel castings—so shall then, willingly, afford space for its publication.

A New Automobile.—London.—The name of instrument, or Civil Engineering, or Precision Vibration, appears originally and exclusively in one volume, the Number containing which can be had on application at our office, or through any bookseller or newsagent.

H. E.—York.—had better address his communication to the directors, as, from what we hear, they are entitled to it, if his complaints are well grounded, because steps will be taken to obviate a recurrence of the evil.

A.

counts of the company, disclosing the circumstance; the mistake arising, on our part, from the belief that the directors would not have produced, at the half-yearly general meeting, held in August last, a balance sheet which was not in strict accordance with the truth—for, whatever may have been the irregularity of their acts, we did not, for a moment, assume that they had “palmed” on the proprietary, *false accounts*. We trust this error, into which the directors have fallen, is open to explanation, as, in such case, we shall be most ready to set them and ourselves right with the shareholders and the public.

It cannot be concealed that the transactions in the Southampton Docks Company have excited more than ordinary attention; not from the importance attached to the company *per se*, or its directors, but as being one of those *exposés* which lead parties to think, and perhaps to extend their imagination so far as to calculate on the possibility of such things having been done in other quarters. It is on this account that we are induced to proceed with the investigation, and to give insertion to facts which bear upon the question; while, if there is another motive which actuates us in this course, it is the proposed application to Parliament—a copy of the bill being now before us, and on which we shall at once proceed to offer some few observations, which appear to us to be applicable at the present moment.

The original capital of the company was £350,000*L*, of which amount it appears only 272,344*L* 10*s*. has been received (in the proposed bill, 272,860*L*)—thus leaving a deficit of 77,655*L* 10*s*. of which but a small portion may be expected to come into the hands of the company. The next fact to which we have to direct attention is, that, on the face of the accounts, it appears that shares, which represent 50*L* capital stock, have been re-issued at 20*L* per share, and, moreover, loan-notes of 30*L*. have been issued, giving to the holder the call or claim of shares of 50*L* each, in lieu of the amount so advanced—and, therefore, so far as these two classes of securities are concerned, we have 50*L* representing 100*L*, the former being the amount of the two respective sums, which, together, represent two shares. If we are right, then, in the deduction thus drawn, it is clear that on 747 re-issued shares, and 747 loan-notes—the one being at a discount of 30*L*, and the latter at 20*L* per share—we have a reduced capital of 37,350*L*, and we also find that 26,500*L* has been borrowed on debentures. What may be the effect on raising the proposed capital of 350,000*L*, under these circumstances, we leave the shareholders to judge, for we presume a case will be made out, on the part of the directors, which will pass muster with a committee of the House of Commons.

Having directed attention, then, to two principal features, we have only to consider the position in which the company is placed in their appeal to the Legislature for increased powers; and we think we shall set forth such a case, as will render it essentially necessary that the directors should act *bond fide*, so far as they are individually concerned, ere their representations can be listened to by a committee of the House of Commons. We have heard it oft said that, in proceedings at law or in equity, you are expected to go into court with “clean hands;” if such be the case in the courts of justice, surely the like will be required in an appeal to an assembly where honour and justice are considered as the bases of its construction. We will now, then, proceed to the case, about being submitted to the House, as the grounds on which increased powers are solicited. In the first place, the directors declare, in one of the early clauses of the bill proposed to be passed, that the object of such bill is “to raise a further sum by the creation of a further capital, or joint-stock, of the nominal amount, or value, of 350,000*L*, to be subscribed for in such parts, or proportions, as the said company, or the directors for the time being, shall appoint.” Here, then, in the onset, we find that the directors seek for a power to be placed in their hands to raise a further sum of 350,000*L*, or, in other words, to double the capital of the company on such *terms* (for that we believe to be the meaning of the phrase) as the directors shall appoint. Truly, we know not which most to admire, the ingenuousness, or the ingenuity, displayed on the part of the directors, who have already given us so glaring, if not satisfactory, evidence of their desire to uphold the company, if not their own characters. The course, we think, under the circumstances, should such become known to the committee, which will be adopted, is, that any further capital which may be subscribed, will be by a fresh “Subscription list,” so that the original shareholders may, to a certain extent, be protected; or, at least, that powers be not given to a board of direction, who, by their acts, have given the most conclusive evidence of their inability, at least in their own opinion, of doing justice to the body of shareholders and *themselves*. We believe that there are instances on record (the Southampton Railway among others) where the power to raise additional capital has only been granted upon a probable source having been shown, from whence the enlarged, or extra, capital might be contemplated.

We have, hitherto, dealt only with the monetary part of the bill, which, indeed, is the most important feature; but it is right we should look to the preamble, as well as the clauses of which it is composed, wherein we find the following words:—“Whereas, the said company have made considerable progress towards the construction of an inner and close dock, and of a lock connecting the same with the tidal basin.”—Now, we are told that the progress made with the inner dock is far from considerable, and, moreover, that a very general opinion prevails on the part of the shareholders that it should be first clearly proved that profits will be made on the outer dock, *ere* the second be further proceeded with. This may be matter of opinion; and we, therefore, see no reason why the directors should not take “the benefit of the doubt.” We think, however, the very circumstance of shares, nominally of 50*L*, and ranking as such in any division or participation of profits, having been issued at 20*L*, requires some little reflection; for further capital be expended, with questionable results—it moreover being, we believe, an admitted fact that, even at the sacrifice of 60 per cent., no mode, the directors were unable to dispose of the entire number of shares, at such reduced rates; while the exercise of the power vested in the company, of raising 150,000*L*, by way of mortgage, has, we believe, been very trifling indeed. Hence, we may assume—if the directors (*the directors*, let it be remembered) be empowered to raise a nominal capital of 350,000*L*, on such terms, and in such proportions, as they may think fit—that such will be of a nature ruinous to the interests of those who have already embarked their capital on the faith of the representations made by the directors at the several meetings, and which, with their accounts, have, unfortunately, proved fallacious.

Looking, then, at the whole case as it stands, we cannot believe that Parliament will grant the powers required by the amended Act, unless, indeed, a fresh “Subscription list” shall accompany the application to the House; but, should not such course be adopted by the committee to whom the bill will be referred, we then consider that a clause will, at least, be inserted, to the effect, that no part of the money shall be raised at a greater sacrifice than—per cent., and that further expenditure in the construction of the inner, or close dock, shall not be incurred without the sanction of—proprietors being obtained in writing; or such other clauses being inserted as will exert the controlling power in the proprietors, and not leave it entirely with the directors.

We shall continue to watch the progress of the proceedings of this company, and to offer such further observations as may appear to the movements in the House of Commons—should the directors proceed further, of which no notice has yet been given—while we have no doubt that proceedings of a different nature will afford employment to gentlemen of the silken robe.

DATA FOR THE USE OF BLAST-FURNACE MANAGERS AT IRON-WORKS.—No. IV.

BY SAMUEL BALDWIN ROGERS, ESQ.

[Mineral and Metallurgical Chemist, Nantyglo, Monmouthshire.]

ON THE BLAST.

The quantity of atmospheric air drives into a blast-furnace, to make a ton of pig-iron, will depend upon the fusibility of the residuum of the minerals at a given temperature; in the usual run of coke-furnaces, in this district of country, and with a cold-blast, 360,000 cubic feet, or 27,000 lbs. (12 tons 1 cwt. 8 lbs., which is reckoning 1000 feet of air to weigh 75 lbs.), may be taken as a fair average; the exact quantity can only be ascertained by the operative managers themselves, in their several localities—all I profess to do in these “letters,” is to furnish a groundwork for their calculations, which may at all times be safely depended upon.

The atmospheric air contains variable portions of water—the quantity being more or less, according to the temperature of the air, from $\frac{1}{10}$ th of its weight, at the freezing point, to an 80th at 59°, and a 40th at 86° of Fahrenheit’s thermometer; hence, at 32°, the water in 360,000 feet (27,000 lbs.) of air will be 1684 lbs.; at 59° it would be 337½ lbs.; and at 86° it would amount to 675 lbs. Here we have the principal cause why furnaces fall off in their make of iron (often to the extent of 20 per cent.) in hot and sultry weather. Barometric pressure will certainly cause a material difference in the quantity of air supplied to iron furnaces, but the fluctuations in that pressure are too changeable to be satisfactorily calculated upon, and, therefore, I omit all reference to them, for, the difference being in *quality* and not in *quantity*, it will not at all affect my calculations as to the action and reaction of a given *quantity* of blast upon the materials in a smelting-furnace.

Some authorities state that the mean quantity of water held in every cubic foot of atmospheric air, in this climate, is 3.789 grs.; this would indicate that 360,000 feet of air would contain 195 lbs. of water, or 19½ gals. Portions of carbonic acid gas are also to be found in the atmosphere (omitting all other impurities), varying, in quantity, from 1 to 2 parts in 1000, or from 27 lbs. to 54 lbs. in the quantity of air required to make a ton of iron. The data taken here is a cold-blast of 3000 cubic feet of air per minute, or 4,320,000 feet per day (twenty-four hours), make 12 tons of iron. Every furnace manager should, however, as correctly as possible, ascertain the exact quantity he actually employs, and which he may, and with sufficient accuracy for all practical purposes, readily do, by dividing the number of cubical feet proceeding from his blast-engines to his furnaces, in the course of a day or a week, by the number of tons of iron made—say, so many feet acres of his blowing pistons—multiplied by their motion in feet per minute, hour, day, or week; this will give the quantity of air delivered for use in the times stated: there should, however, due allowance be made for leakage of apparatus, and for the regurgitations of air at the tuyers, and for the escape at the temps, which, in some cases, will amount to 10 per cent. of the blast. One of the advantages of using hot-blast, is the adoption of closed tuyers, which effectually prevents all regurgitations, and, consequently, is the means of conveying a larger quantity of air into the furnace in any given time.

There has much less attention been paid to a due regulation of the blast of furnaces than the subject deserves, for, it is an acknowledged fact, that the *temperature* of a furnace will depend entirely on the quantity of air decomposed therein, over ignited fuel, in any given time; and, therefore, it may safely be depended upon as a truth, that if the earthy residuum in iron furnaces will not fuse into a clear, colourless, and fluid glass, or cinder, at a temperature generated by a current decomposition of (say) 3000 cubic feet of air per minute, impediments will inevitably accumulate round the hearth and sides of the furnace, more or less, as the local heat may be inadequate to bring the residuum into that state of liquidity to permit of their readily flowing away at the cinder notch of the furnace.

The partial, or imperfect, fusion of the residuary earths of the ore, the limestone, or flux, and the ashes of the fuel, is the origin of nearly all the difficulties experienced in blast-furnace management; to avoid, or vanquish, which difficulties, an extra temperature must be generated, by the decomposition of more atmospheric air, upon an extra dose of carbon in a given time, or by employing a hot-blast, or air heated to the required degree, previous to its introduction into the furnace; hence, it manifestly appears, that a hot-blast is an equivalent for an extra decomposition of air and combustion of fuel, within the furnace, its effect entirely depending on its temperature; its action has no other difference whatever from that of a cold-blast. The imputed rottenness, or weakness, of hot-blast iron, arises from a cause perfectly distinct from that of the air being heated to any specific temperature, as may be readily and plainly shown, were it not for prolonging these letters to an unnecessary and inconvenient length. Another, and equally efficient, remedy for the imperfect fusion of the earthy residuum of blast-furnaces, may be found in the use of a more active flux than what is generally used—one that would bring such residuum into a clear and colourless glass at the usual (or even at a lower) temperature of the furnace—consequently, there are three ways of remedying or obviating the difficulties above-mentioned—viz., 1st, to decompose more atmospheric air, and also more fuel, in any given time, so as to raise the temperature of the furnace to the desired degree; 2d, to employ a hot-blast, which, in effect, is precisely the same as decomposing more air and fuel, but with the peculiar advantage of there being no residuum to vitiate the process; and, 3d, to introduce an extra flux, that shall cause the earthy residuum to flow away at the usual (or, if possible, a lower) temperature. On these points may be said to hang all the difficulties of blast-furnace management, and, therefore, there cannot be too much attention paid to them, and more especially the last; for, as long as a master depends upon a specific charge of limestone (supposing that material to be of a good and uniform quality, which is very seldom the case, at large works, for a week together), to bring into sufficient fusion the residuum of his fixed, and apparently uniform, charges of mine and fuel, which at one time shall amount to 1000 lbs. on the ton of iron made, and at another, at an interval of only a few days, perhaps, 1200 lbs. (a very common occurrence), he will inevitably be disappointed in his results; and, to remedy this evil, there is no other possible safe and certain road for him to pursue, than to repeatedly refer to the components of the minerals upon which he may have to operate, and that by analysis only; all other modes of proceeding will be merely guess-work, and, therefore, alike uncertain and unsafe. It is true, that furnace managers (who, it is to be regretted, are very seldom permitted to sort and select their materials) frequently do make alterations in the charge of limestone, but they make such alterations only when they find the cinder on the fall of the furnace has changed for the worse, and then they have to wait for two, and frequently four or six, days before the evil is counteracted, experiencing, during the time, a material loss of quality, and sometimes of yield also, in the iron of four, eight, or twelve tons; the aggregate loss at large works, on this head alone, would astound those persons who may be unacquainted with the irregularities of iron furnaces under the present system, or rather non-system, of management, and it is nothing but the enormous capital employed at such works that enables the proprietors of them to proceed with their operations over such drawbacks as here alluded to, with comparative success and satisfaction.

The high pillar of blast at present used (i. e., 2*L* lbs. pressure per square inch) is imagined to be necessary, in order to penetrate into the hearth of the furnace, through relatively small tuyeres, and also through the materials, the earthy parts of which, about the bottom of the hearth, are generally in a state of semi-fusion; it is, however, the quantity, and not the density of the blast that is of importance in the furnace, for, if a due quantity can be introduced, it is of little consequence as to its density. From some recent trials in this neighbourhood, a much lower pillar of blast than 2*L* lbs. per inch has, with large tuyeres, produced very superior work; and both reason and analogy point out clearly that it should do so, for the temperature of furnaces is, as above shown, necessarily regulated and supported by the quantity of air decomposed in any given time (hot-blast being merely an exception), and hence we may safely conclude, that of 3000 feet of air are used up in one minute of time to produce a certain temperature, 4000 feet, decomposed in the same time, and under the same circumstances, would yield one-third more heat, and, consequently, bring into fusion earthy mixtures, that, at the previous temperature, would be only a pasty, or semi-fluid mass; and, if only 2000 feet per minute of air be used, the heat must necessarily be one-third less, and substances which would readily fuse in the first case, would then begin to set and adhere to the cooler parts of the furnace; in this predicament the hearth and bushes would, in a comparatively short space of time, be filled up by the coke and shales of iron, as they fall, becoming enveloped in a mass of independently fused cinders, similar in consistency and tenacity to broken’ dough, were not the iron to be oxidized by the blast, and react as a flux upon the other materials, and thus cause the

impediments to flow away from the furnace as a black “scouring cinder.” It should, however, be observed, that there are other causes which will produce a “scouring cinder,” besides a deficiency of blast; for instance, if the earthy residuum will not fuse, at the usual temperature of a furnace (when she may be said to be working well), into a clear and liquid glassy cinder, they will stick, more or less, to the sides of the hearth and bushes, and produce a similar result to that just described as arising from a deficiency of blast, and the only salvation to the hearth is, under present management, a “scouring cinder,” for sometimes many days together, and with a sacrifice in yield and quality of iron that would defray the expense of analysing materials, and of an efficient auxiliary flux, probably, twenty times over.

[Observations on the Blast will be concluded in the next letter.]

ORIGINAL CORRESPONDENCE.

ON THE VENTILATION OF MINES—No. V. TO THE EDITOR OF THE MINING JOURNAL.

SIR.—The various methods of applying the motive-power, which have been noticed in the former papers, will have each their peculiar advantages to particular places. Their success will altogether depend on their judicious selection and adaptation to the circumstances which they are best calculated to suit. Every officer, or agent, who knows their several merits, will be able to apply some one of them to advantage, as it may best suit his purpose.

If the pit, or mine, be sunk upon ground that rises rapidly, then an air pit to the crop will be of advantage; or, if such a pit be not sunk, then the pit, being divided by a brattice into two, a drift, driven thro’ the strata, as an air drift, should be made, as in fig. 1; where A is upcast, B is downcast, C is the air drift, and

D is the coal vein, &c.

We give this view to show what should be done, when only one pit is sunk, but we always approve of two. The other modes may be employed to assist this natural and cheap mode, when it is found deficient in power. In flat and even ground, however, this natural facility does not exist; and then we should always advocate the method of a furnace being placed at the top or bottom of the pit, and then, by rarefaction and by combustion, a sufficient current will be induced; care, however, should be taken to have, in one case, a *fast air drift*, through which all air should be admitted not fit to be passed over or through the fire, either in a flue or in a state of incandescence; and in the other, where plenty of air is to be had, a diluting quantity should be admitted, that safety may be preserved. In the case of a level being worked by driving into any mountain from a valley, and having an air pit sunk on the level, or on the workings, to ventilate the places, care should be taken that there be no reflux of the current, or else the return air may be unexpectedly brought again upon the lamps or candles. If a reflux do not actually take place, a sort of stagnation may be produced, which will charge the mine generally, or in particular places, with carburetted hydrogen. This may not have been observed generally, but we have ourselves seen it frequently happen. We account for it thus:—If the pit for air be of a given depth, and sunk on the mountain, or on its side, then it will at all times naturally *eat up*, except in very hot weather, and in the heat of the day, when it will be disposed to flow out into the valley, in consequence of the heat found in the valley surpassing that found in more elevated places.

The plan of finding the quantity of air passing in any given place or time, is, generally, that of causing any one to sit to windward, in a good and favoured spot, and, having measured a certain distance—say, twenty yards—you, with watch in hand, sit down, and order him, at hearing a particular sign which is given, to smoke freely; then you count the seconds of passing until the smoke arrives. This is one way, but, perhaps, a good anerometer, made to register the time, would be much better; that should be put in a particular place, to be seen by all having charge, and, if possible, under the immediate care of the furnace manager, who should thoroughly understand the instrument. He then could push, or impede, the furnace, as circumstances might require. We have seen a very simple one answer very well. A barometer should also be kept in each colliery office, accessible to those who have charge, and a thermometer could easily be placed in the upcast air pit, so as to be influenced by the heat of the air in passing up, and yet be inspectable by agents, &c. The anerometer would be excellent, as a portable instrument, to detect the state of the air passing in the mine. Such a one as you reported, a few months ago, in the Journal, working on the principle of the barometer, and by an excellent contrivance, ringing a small bell attached when danger approached. This would, in our estimation, be an excellent companion to all having to try the fire, as it is called, or for any agent of mines. We now close our observations on this subject, by stating it, as our opinion, that, if possible, every winning of a colliery, as it is called, should have two pits sunk for working, one *upcast* and another *downcast*, for the air. For want of this, we have seen some valuable lives lost. The enemy seems to be so secret, and, when met, so powerful, that the utmost vigilance is absolutely necessary, or more lives will be sacrificed by fire damp than by any other cause.

U. THOMSON.

VENTILATION OF MINES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR.—The subject of ventilation of mines is well worthy the attention bestowed upon it in the columns of your Journal, for, according to the old adage, “in the multitude of counsellors there is safety.” Experience has proved that, under certain circumstances, the safety-lamp is not a sufficient protection against the dangerous mixture of carburetted hydrogen and atmospheric air, either from the ignorance or folly of the miners in rashly exposing the flame, or from the existence of a current of air, by which foreign matters on the external surface of the wire gauze are heated to such a degree as to occasion explosion; or, otherwise, from the slighting the notice given of the presence of noxious vapours in the lengthened flame of the lamp, and the popular smell attached to them. While the miner is inattentive to his own safety, becoming rash from his constant exposure to danger, it cannot be expected that any scientific discovery or mechanical contrivance will wholly remove the danger. Mr. Goldsmith Gurney, in his evidence before the Select Committee on Accidents in Mines, suggested the use of artificial light, by placing seven lights of the first order in the focus of seven true 12-inch parabolae, arranged within a circle of three feet diameter, by which the longest mines of the kingdom might be effectively illuminated, the obstruction of stoppings being overcome by the introduction of pieces of plate glass in the door, so as to admit the passage of light through it, or a second light might be brought in an opposite direction—the narrow galleries, when requisite, to be widened, so as to admit the passage of the reflected light. Now, it does not appear to me that this plan has ever been acted upon, although far less expensive than many of those pointed out by some of your correspondents, and, undoubtedly, far more safe; it is certain that no plan can be generally adopted, unless by the process of boring, or shafts, the difficulties arising from the tortuous nature of the galleries to be effectively overcome; so convinced are the Cornish miners of this, that the application of a greater number of shafts than is usual in the collieries is very general, and the consequence is, that no mines in the world are better ventilated;—and, indeed, this plan of ventilation is a necessary auxiliary to Mr. Gurney’s plan, to enable the light to pass freely from gallery to gallery, which could not be done with good effect otherwise, from the density of the gauze, or wall, as being generally necessary for the purpose of examining the veins. I am much inclined to doubt the efficacy of introducing either hot or cold air into the mines, unless it can be shown that, by so doing, the dangerous state of the atmosphere of the mines is neutralised, or, otherwise, that the noxious vapours are carried off through the upcast shaft, for it often happens that a few minutes are sufficient to introduce within the chamber a sufficient quantity of this gas to form an explosive mixture; or, as Dr. Cleary observes, it comes on like a flash of lightning, and, if it be the shot-damp, it is certain that, unless the current of air is very strong, its specific gravity will cause it to that part of the mine in which it is generated, for even in open walls, and large veins, it most tenaciously maintains its position, although exposed to the open air; and I much doubt whether the plan of Mr. Martin, of sinking a shaft at the lower end of the inclined slope, and forming from this a gallery round those sides of a great angle, terminating in an up-shaft, would, independent of the vigilance, answer any of the purposes contemplated. It appears to me, that such due attention is necessary in following the workings through the shaft during the

coal seams, much mischief may be avoided, for it is evident that the effect of a thrust breaking the thrill is to liberate the imprisoned gas beneath, causing a sudden outburst, which, in many instances, would negative any human attempt to neutralise its powers, the only means of safety left being a speedy retreat; the carbonic acid gas seldom accumulates in this very sudden manner, and its immediate effects upon the flame when reaching it, are sufficient warning for a speedy retreat. When sulphuretted hydrogen—the most dangerous and insidious of all gaseous compounds—is abundant in mines, the same difficulty of applying a certain and effectual remedy exists; for, issuing from old wastes, or fissures of the mine, it prostrates at once the energies of the workman, and, unless immediate assistance is obtained, he is suffocated, and the flame of the candle being unaffected, no indications are afforded of the existence, or sudden evolution, of this gas. I do not think that any supply of air could be obtained to neutralise this destructive vapour in sufficient time to save life, although its presence would prove beneficial in ultimately clearing the mine of the noxious vapour. The present mode of ventilation, by means of the furnace, causing a circulation of air throughout the mine of about three feet per second, has been found efficient for all the purposes of ventilation in the generality of mines to which it has been applied, but against this mode of ventilation it has been urged, that, if there is a current of air exceeding 300 feet per minute, it would drive the flame through the meshes of the safety-lamp. Again, it is a question, whether the atmospheric air introduced into the pit, by whatever mode it may be done, extends its volume over the whole pit, through the various galleries and chambers, or whether it only forces itself through the gaseous products of the mine, carrying off only a portion of these gases, in replacement of the loss of a portion of its own volume; I am inclined to be of opinion, that it does not at all times carry away the products of coal mines as fast as they are generated, and, consequently, they must be deemed unsafe. Whatever plans are proposed for the ventilation of mines, and the greater safety of the miners, they must be such as are at once economical, and suited to the purses of those to whom they belong—otherwise, there is little hope of their being adopted.

Penzance, March 14.

NEW THEORY OF APPLYING STEAM TO AN ENGINE, WITH A NEW PROCESS OF EVAPORATION.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Observing in your Journal an improvement on the steam-engine, by Mr. Sims, for the purpose of using the same steam again, and working at a lower pressure, I beg leave to draw the attention of practical engineers to the circumstance of these two important objects being attainable to the full extent by my patent process of evaporation. Although the same steam is not actually used, its heat is applied in carrying on evaporation similar to my plan, described in your Journal of 28th January. Suppose a steam-boiler, similar to, and placed alongside, the one described, and to be covered with a non-conducting insulation to save heat; the internal fittings and plan of working to be the same in every respect as the boiler to which heat is applied, but, instead of one, there will be two processes of evaporation, and, of course, two discharges of steam and water into the steam chest, as shown in the diagram. The steam, after having worked the engine, passes into the one end of said boiler, and allowed to escape at the opposite end by a pipe, with an exit steam throttle attached to it, and a stop-cock for running off the condensed water below. Should the process of forcing the hot air from the chimney to the steam chest be applied, it is clear that the heat of the steam in the chest will be of a higher temperature than the steam in the boiler exposed to heat; it, therefore, follows, that the evaporation will be even greater from the waste steam vessel than from the other. Although it may appear strange to many, that steam without pressure should indicate a greater heat than steam under pressure, it is nevertheless a fact that has been proved, and Mr. Josiah Parker adds his testimony to the fact, in his report, recently published, on Mr. Perkins's steam-boiler.

GEOFFREY GOONLAR.

Louth, March 14.

SOUTH SHIELDS REPORT—PRACTICAL MINING EDUCATION.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I have read with interest, and, I trust, with profit, the extracts and this review, in the *Mining Journal*, of the *Report of the South Shields Committee, on the Causes, and Means for the Prevention, of Accidents in Mines*, and would beg to offer a few observations on one or two of the heads of this luminous report. It may appear presumption in me so illiterate, and so humble in station, to attempt to criticise the views and opinions of gentlemen who have brought forward such an array of facts, with disinterestedness and judgment to see and suggest so many notable improvements, yet I hope my being one of that class from whom has hitherto been selected the present guides and directors of mines, will be considered an ample apology for giving my opinion.

I believe it will be admitted, the mines in these islands are as ably conducted as those of our continental neighbours, where science and practical knowledge may be said to be divorced, or how comes it that we are exporters of practical knowledge, and not rather importers of their scientific scholars; there is no sliding scale here, I believe, to prevent them landing in our country. Let us, however, see how this South Shields Committee propose carrying out the education of officers for viewers and under-viewers, before they can be legally employed. The different branches of science are enumerated, and to complete this professional education by a course of practical mining in some fitting institution in the heart of a mining district. And they allege a fitting institution already exists, were it somewhat extended and legally established—viz., the University of Durham. To this I would remark, that my belief is, that 500 out of every 100 who possess mining property in this country, and a knowledge of practical mining, would consider even harboring Egypt as fitting a place for the education of viewers and under-viewers in practical mining; but, if we are to take hints from our neighbours, what objections can there be to an industrial and scientific education combined, such as is adopted in some of the continental towns, for the improvement of manufacturers; this, to be sure, might not be thought to be an "obligation" for the profession, but it would, I think, prove more useful and cheering to the great body of miners, which ought to be the first consideration; and it surely would be more rational and natural, to bring the school to miners, than to bring miners into the school. "The attitude and discipline of the mine," in regard to learning practical mining, may be said to possess the brightness of the sun's light, whereas, within the walls of a college, there can only be a glimmering of moonlight. It may be objected, that practical miners would not avail themselves of the improvement of a scientific education, even although suitably brought within their reach, and that their labour in the mines would then be study, even of those sciences which are by no means abstract. To this it might be a sufficient reply to say, look at the great efforts and unceasing exertions made by the meritorious class of men who are now the directors of mines, to obtain literary and scientific knowledge (and, although the amount of such knowledge may be said to be small, so may it also be said of the host of scholars, all learning is little), and their opportunities were even less twenty years ago than now, although by far too limited yet; and, as regards their labour, I know no difficulties to stand in their way—such as might be said, are capable of being turned into advantages in practical mining. This class of men, then, merit, in the opinion of every well-regulated mind, positive superior claims to have provision made for increased facilities for their improvement, so that the meritorious conducting masters for scientific and learned thoughts only, particularly when it is required for their interests, that practical science, with those of stronger minds than ours, and whose natural bent of genius leads towards scientific attainment, shall be delivered from legal apprenticeship, as viewer or under-viewer, without a deduction from a master, and "whose intellects should be impeded before permission be granted to assume so impulsive a situation." Were it not that the stability of this proposition carries with it its own refutation, one might be disposed to look seriously at this uncharitable diagnostic emanation, deriving its last breath which it is professed to insults. I know it will be argued, that I am one of that class, whose prejudices and interests tell me that our craft would be to prosper by the present institutions; to this I shall say, were it only the law of our own class, who might be possessed thereof, deranging their deserved condition, by being presented to extraction of responsibility, and who might suffer along with the natural wealth of my country, it would give me no particular displeasure, but when I see a "heavy blow and great disengagement" to the education of all, except such as can afford money or credit to possess a compensation certificate, or diploma, I think, would be too great to admit such a calamity. The properties of these heavy-disengaged who venture their regards to but physical conditions and rights of the great mass of mankind (as if they were only a part of the total human race), ought to be looked on with great dis-

trust. Reference has been made to the effects of Napoleon, as regards mines; I perfectly agree that we might learn many useful lessons from that great (although, as I think, bad) man. To whom was he indebted for his success, but to practical men? had he required a college certificate before appointing viewers and under-viewers in his armies, would he ever have been able to cope with the richest and most powerful nation in the world, and to have brought the whole continent of Europe under his sway?—so much for the ladder by which he rose. To what was his fall to be attributed?—to his turning round on those nations who had welcomed him as their deliverer, and telling them their first duty was to himself! the second duty towards France! and that all their other duties towards their own country was to rank after them!!! In like manner this learned committee would persuade us that all local knowledge and local interests should be secondary to that of sustaining the college graduates—and all for the interest of humanity, forsooth! A WORKMAN.

March 12.

[We are well pleased that our able correspondent has directed his attention to the subject, and have only to express our surprise that we have not received other communications from parties who know not only how to appreciate the value to be attached to the report, but the promulgation of whose opinions would be valuable to science, as well as useful in advancing the object in view.]

MINING IN IRELAND.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—In your valuable Journal of the 4th inst., I observe a letter from your correspondent in the county Waterford, "On Mining in Ireland." That the subject, so neglected by the English capitalist, has been taken up by the Irish gentry, is pretty evident, from the fact, that in almost all the concerns lately commenced in this part of the country, Irishmen are alone concerned; there are at present five companies in this immediate neighbourhood, who are most actively engaged in laying open the mineral resources of this part of the country—viz., Coocheen, Wheal Bandon, Roaring Water, Ballindalab, Consolidated, and West Carberry. The ore at Coocheen and Wheal Bandon is a rich grey, with quantities of carbons of copper on the back of the lodes; but, at Roaring Water, the lodes are of a very different description—large quantities of friable quartz, with a fine gossan, being found near the surface, making bunches of rich black and grey copper; but, in depth, the ore changes to a very rich yellow red, free from sulphur. I have seen and heard a good deal of the plan heretofore pursued as to mining in this country—expensive London establishments, with carless, and often ignorant, agents, rather wishing to obtain a good name for themselves, by allowing the workmen good wages, than looking after the interests of their employers, have been the sole cause of many failures. The gentlemen now engaged in working these mines, in the first place, have no capital to throw away; and, secondly, have profited by experience; and I have no hesitation in stating, that this is a far wider, and infinitely cheaper, field for advantageous investment, than any that has yet come under our notice. The miners' wages vary from £s. to £d. 3d. per day; men who—Englishmen as I am, I must admit—can do the common work required quite as well as Cornishmen. In ground requiring timber they are any thing but expert, never having had any experience, as hardly any timber is required. The common labourers are a most hard working set of fellows, and will work for twelve hours for £d. or 9d. I shall conclude these observations, by urging upon the English capitalist and miner not to spend more money—I may say, almost fruitlessly—on foreign mines, which have involved such enormous losses, but in future to attend more to an island (within, I might almost say, a few hours' sail from your homes), offering the inducement which this country does; and as to parties talking of being afraid, as I have heard some say, it is preposterous—you may travel at all hours of the day or night, and meet with nothing but the greatest civility and a hearty welcome.

A WELL WISHER TO IRELAND.

Ballindalab, County Cork, March 11.

[Ireland has one best wish, and we shall with pleasure the novelty of Irish men being found ready to develop, and, we hope, profit by the mineral resources of their country. We are not prepared to go so far as our correspondent does as to the past, but we will hope that the present adventurers will, at least, avoid falling into an error to which is ascribed the want of success, or further extent of mining operations in the Sister Isle.]

SUPERIORITY OF IRON AS A BUILDING MATERIAL.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Through the columns of your valuable publication, permit me to call the attention of the proprietors of West Indian property, to the great advantage of iron houses over those of stone or bricks, in all countries subject to earthquakes; had this been the case at Guadalupe and Martinique, the great loss of life and property would have been very considerably less than it has been upon the late melancholy event, which has spread destruction over so many families in those islands. The subject of substituting iron for a building material, only requires to be more generally known to insure a very great consumption of it for these purposes, to the mutual advantage of both consumer and producer. As a friend to the mining interest of Great Britain, I am sure you will not consider any apology necessary for thus intruding upon you these few hasty remarks, and trusting you will allow them a corner in your next week's publication.

Newcastle-under-Lyne, March 16.

A SUBSCRIBER.

ANTHRACITE IRON—HOT AND COLD-BLAST.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I have looked forward with some anxiety to your succeeding Numbers, since the last letter treating on the subject of the superiority of hot-blast over cold-blast (or vice versa), in the manufacture of pig-iron with anthracite, but am sorry to say that I have gleaned but little information. The absence of any remarks on your part, except as regards the use of anthracite for furnaces of boilers, in which I take some interest as an anthracite proprietor, induces me to believe that some understanding has been come to between the rival powers, and hence the question, as far as the public is concerned, may be considered to be at rest. If such be the case, I venture to submit to you, and to the parties engaged in the hot and cold-blast warfare, that it is only due to you, as well as to your readers, that one or other of the belligerent powers should announce the terms of armistice, so that we who look to benefit ourselves, by the working of our mineral trade, may be able to hold out to the capitalist and to the ironmaster those sound and legitimate prospects which practice and experience fully justify, whether as affects the one or other mode of smelting—so that anthracite be the fuel employed. I will not further trespass on your space, but trust that those gentlemen who availed themselves of your columns to vent their spleen, and to promote their own ends, will feel that they ought only to forgive, on reflecting from the field, to put us in possession of the knowledge as to which is the most economical mode of smelting iron with anthracite (I mean with reference both to quantity and quality)—hot or cold-blast?

AN ANTHRACITE PROPRIETOR.

[We have had word of any arrangement or compromise being made between the parties, nor do we believe such has taken place. As the period has nearly arrived for Mr. Stodd's specification being enrolled, we presume we shall hear more on the subject, and shall not fail to give insertion to any matter bearing on the question, to which we attach considerable interest, as affecting so vast a portion of the Swansea district.]

ON THE ORIGIN OF MINERAL VEINS.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Messrs. Thompson and Deakin, like flying birds, have recourse to an element alien to their nature, in order to escape from the society; and, like them, they soon sink exhausted into their own native depths. Mr. Thompson is as shabby as his practical information (if he has any) as he is anxious to figure in the cap and bells. Men of science have but one wish, and that is, to instruct others in what instruction must be truly valuable, and, by the aid of theories and reasons, to bring the science to a more just and lucid view of things; and, sure I am, that the schismatics in writing in the hills of Birmingham. I speak of the common objects and common phenomena of Nature, familiar to those who visit various parts of the earth, of independent truths, familiar in crowded cities, to children and the unlearned, but, as it appears, wholly unknown to the practical master, for so Mr. Deakin informs us. The specimens he sends are incomprehensible, as though he conjectured on such things were in sandstone, as are observed on the stones composing his own native hills, our public and private monuments being replete with them, and many of the inferior soils of the earth—say, hills and mountains—being wholly composed of the organic remains of species long since extinct. From whence has Mr. Deakin derived his ideas, that there are no mineral beds in Yarrow, and that the quartz contained in yarrow stones and others—Sandstone, shale, &c.—are the natural products of the earth?

the abstracted mineral matter of the lower as well as of the superficial beds, being ejected as lava, like a river of molten iron or lead, or consisting of such varied material as is found in beds deeper far than Mr. Deakin ever penetrated; the volcano is fed by mineral matter—hence the enormous quantities of sulphur common to most of them. Again, there are lakes, springs, and reservoirs of water, which have the quality of converting wood into stone, the wood preserving its organic structure; in the Dovre coal formations we distinctly observe the gradual transition of wood into coal, and in most countries organic animals and vegetables are found converted into ironstone, iron pyrites, quartz, and other substances. Mr. Thompson is asked for bread, and he gives a stone; he will admit no theories but his own—no facts but such as are consonant to his own narrow and restricted views: let it be so, but, at the same time, let him give us a specimen of what he does know. Practical knowledge must, indeed, be valuable, if we are to wade up to our necks in the mire for it. In answer to his childish question, I have to observe, that consolidated matter, in deposition, is often directed or governed in its course by local peculiarities, giving way to impediments, as the waters of a river charged with mud or sand give way to a pile of rocks or solid earth placed in the middle of the stream, and re-uniting after this impediment is past; there are proofs that some faults are contemporaneous with the vein—others long after,

J. S. D.

Oxford, March 8.

DRY-ROT.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—It is superfluous, almost, to say, that what are called "dry-rot plants," and which are, though harmless, generally considered the criminals implicated in the deed of destruction, are entirely innocent, and not to blame. The work of destruction has not only commenced, but has advanced far on the march of entire decay, before the *merulius destructor*, or *merulius lacrymans* (the latter a misnomer), make their appearance, and they spring up as the product of decay, originating, no doubt, in the decomposition of unlaboured sap, in immature wood. Kyan's cure, and Sir William Burnett's prevention, have both been called in question. The former is, at any rate, altogether problematical; if we may be allowed to judge from the contrariety of statements and opinions. The application of the corrosive sublimate solution is founded on the assumption that "dry-rot" proceeds from the decay of the albumen of the sap, but some salts of copper will coagulate albumen as well as chloride of mercury. Ten years before Kyan ever studied the subject, as far as the public are aware, I proposed, through Sir John Barrow, their secretary, the following process to the Admiralty:—Having proved that sulphate of iron was a preventive of "dry-rot," I recommended the timber to be impregnated with the solution in the following simple manner:—An air-tight case, such as that used when steaming timber for vessels, supplied with the wood, was connected at one end with the pipe proceeding from a boiler, furnished with a stop-cock; and by a shaft from below, united with a tank containing the metallic solution—this shaft, or pipe, having, in like manner, a stop-cock. The case being filled with steam from the boiler, a jet of cold water condensed the steam, and formed a vacuum, and the stop-cock, in connection with the tank, being opened, the solution of sulphate of iron rushed up into the case, and impregnated the wood to its very core. I have yet to learn a more effective method for the prevention of "dry-rot." I am not now speaking of the extreme danger of using wood impregnated with corrosive sublimate, in many cases, such as the extreme folly of using timber thus impregnated, wherein to raise mushrooms; one would imagine the risk sufficiently great in using these apocryphal esculents at all, much more when saturated with corrosive sublimate. J. MURRAY.

March 8.

STREET PAVING.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—The slippery and very dangerous state of those streets of the metropolis which are paved with wood, calls loudly upon the inventive spirit of the age for an immediate remedy. It is a remarkable fact, that while we are extending the use of wood as pavement throughout the metropolis, the people of New York are equally solicitous to substitute stone in the place of wood, the latter being condemned as exceedingly dangerous, and annoying as it wears. It is evident that there is a radical defect in the modes of preparing and laying the wooden blocks; in the first place, the concrete foundation, otherwise desirable, retains all the water falling on the streets, and percolating through the interstices of the wood, thus facilitating its decay and wear, and also the accumulation of mud; and, secondly, the plan of grooving, as now adopted, is most decidedly unsophisticated, as it facilitates the expansion and spread of the fibres, and, consequently, is the means of making the streets still more slippery after a short exposure to wet weather. If wood alone is to be used, the foundation should be of that nature as to admit the water freely passing off into the drains, and the blocks should be disposed to form unequal surfaces; but I do think that the co-operation of iron will be found extremely beneficial, either as suggested by a correspondent in your Journal, or as a substitute for both wood and stone; the use of cast-iron for public and private residences, is rapidly extending, why not have some of the most public streets paved with the like material, employing, as was intended some years ago, square pieces of cast-iron, suitably shaped and dovetailed. The experiment was successfully tried in the Blackfriars-road, and it was then intended to extend its use, but why the plan was not carried out, I do not know. The pieces laid down in the Blackfriars-road, resembled a batch of eight or nine rolls taken from the oven, being united like the parts of a dissected map, without interstices or palpable joints. Something must be done by the existing wood paving companies, or it is evident that other companies will spring up to do it for them.

PENITENTIARY.

[We are disposed to doubt the correctness of the assertions made with reference to the "iron way" in Blackfriars-road; which, if we remember rightly, was near Holland-street, on the declivity from the bridge, and certainly not, we will admit, a fair test. We remember seeing it in a very dilapidated form, and it was subsequently removed, after several accidents had occurred, and its general inconvenience admitted. It is quite clear that an iron surface is more dangerous and slippery than that of wood. We have heard of saturating the blocks with certain compounds, and other measures—a proposed plan, which will obviate the difficulties and inconveniences now experienced, on which we may have more to say on another occasion.]

SOUTHAMPTON DOCK COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—In the observations which you make in your paper of Saturday last, relative to the Southampton Dock Company, it seems to be implied at your impression, rather than at your conviction, that I am not amenable to your criticism on the points to which you refer. I think it right, therefore, briefly to say, that I did not become a director, nor even a proprietor, of the Southampton Dock until February, 1842—that is to say, above two years and a half after the date of the transaction of which you complain. *Adam Azaria Goldsmith.*

[We did not, in the slightest degree, intend to imply that Mr. A. A. Goldsmith was culpable, or had a knowledge, of the transaction; and, we think, a reference to the article, in last week's Journal, will not only acquit him of any participation, but exonerate of any intention of alleging a knowledge on his part. We then wrote without Mr. Goldsmith's authority, we are glad to find even the "impression" we then entertained, if we did not fully express the "conviction," fully confirmed by the preceding letter.]

SOUTHAMPTON DOCKS COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—As a party, haggard not very deeply, interested in the affairs of the Southampton Dock Company, I cannot but award to you the credit of giving the proceedings of the directors. You have, Sir, done much service, in this regard, by exposing abuses; and I was in hopes that the severe investigation you have, on more than one occasion, inflicted on these abusers, would have had the effect of preventing a repetition of their nefarious designs; but I regret to find that there are yet some men as odious and insatiable as all others, and so devoid of all principle, that, in the present instance, if it be not the worst case to which you have pointed attention, it is quite bad enough to warrant severity of exposure and exposure.

I cannot think otherwise than that the directors must be held liable for the abuses which they represented to us they had paid on these shares (for the bonds given the payment made); and I trust that Mr. Goldsmith, or some other public-spirited proprietor, will bring the question forward in a spirit of equity, when, with such glaring facts as evidence, we might secure a verdict in favour of the company.

Cornwall, March 14.

[Some observations on the procedure of the directors, and the trials connected with the appeal which has taken place, as related to the proceedings of this company, will be found in another column.]

DEANE'S DIVING APPARATUS.
TO THE EDITOR OF THE MINING JOURNAL.

SIR.—It is more than twenty years since I proposed, for the prompt recovery of the bodies of the drowned, an apparatus similar in principle to that of Deane. The plan was published in the *Hull Advertiser* at the time, so that it is no posthumous claim that I now advance, and I still think that such an apparatus might be most serviceable as an adjunct to the Royal Humane Society's various machines, to afford aid in case of accident, and to rescue from the water the bodies of such persons as may have sunk beneath the surface. The plan simply consisted of an air-tight hood, or helmet, resting on the shoulders; a double tube was connected with this helmet—the one for the escape of the heated and respiration air alone, and the other, entering from below, supplied fresh air, injected by a powerful condenser, at the other terminus. You will see that the principle is essentially that of Deane's diving apparatus, but my proposition was published, at least, twelve years before Deane's name was known to the public.

J. MURRAY.

DELETERIOUS AIR IN MINES.

TO THE EDITOR OF THE WEST BIRTON.

SIR.—Will you have the goodness to state, in your columns, what gases most contribute to render the air irrespirable or deleterious to the Cornish miner? By so doing, you will lend a valuable hint to the chemical fraternity, and much oblige your constant reader,

J. H., a Chemist.

Southampton, March 2.

[Some of our scientific mining readers will, probably, be kind enough to furnish the information which our correspondent requests, and, meanwhile, we may refer him to a valuable paper which appeared in the *Report of the Cornwall Polytechnic Institution*, and to which reference, if we mistake not, was made at the time in our columns.]

LOCOMOTION—THE RELATIVE ADVANTAGES OF STEAM AND ANIMAL POWER CONSIDERED.

TO THE EDITOR OF THE MINING JOURNAL.

SIR.—Permit me, through your medium, to offer to your readers and the public some observations on the relative merits of steam and animal power as applicable to locomotion.

Some time ago, I waited upon the secretary of the Greenwich Railway, for the purpose of soliciting an interview with the directors, relative to proposing to them a plan of conveying their traffic by animal power, by which I imagined that a considerable saving would be effected, and was pleased to find that the secretary entertained the same opinion as myself on the subject. I also, at the same time, had an interview with the engineer, who, although he did not admit the saving would be equal to my anticipation, yet thought the subject worth investigating, and intimated that the only way to arrive at facts, whereby to judge in the matter, was to learn what a responsible party would undertake to convey the passengers for, either per train or individually. The secretary very obligingly promised to lay before the directors any communication I might be disposed to make, I, accordingly, some time after, addressed to them a long letter, in which I endeavoured to show that a saving of from \$6000, to 10,000, per annum might be effected, by adopting horse-power; but as the receipt of the communication was never acknowledged, I am not aware if ever it was laid before them. Some time subsequent, I again addressed the directors, stating that I was authorised by a most respectable and responsible coach contractor to find the requisite number of horses, and convey their trains (not exceeding sixty passengers each) at less than 1s. 6d. per train, the whole distance of three miles and three-quarters—little more than one furlong each, or about the sixteenth part of a penny per mile, being, according to my estimation, about 200 per cent. less than it now costs them for steam, &c.; but this communication, like the former, was never acknowledged: consequently, it may be presumed the subject was deemed not worth entertaining. However, whatever may be their, or others', opinion, I contend, and fearlessly assert, that horse railways would be (all things considered) a greater public convenience and advantage than steam. It cannot be disputed—at least, it cannot be disproved—that, from some cause or other, in order to obtain the average speed of twenty miles an hour, 15*t*. out of every 100*t*. (of gross taking) is expended beyond what would be required to maintain animal power to accomplish the same work, at half the speed; in fact, one-half the sum expended on some railways for coke only would be more than sufficient to maintain the requisite animal power to convey the same amount of traffic.

I find that the cost of constructing five of the principal horse railways in America is under an average of 10,000*t*. per mile. Mr. Telford estimated, in 1825, a horse railway from Glasgow to Berwick, and from Liverpool to Birmingham, at considerably under 30,000*t*. per mile. I therefore cannot but think that it must have been a greater public benefit to expend, say even 30,000*t*. per mile, to convey at ten or twelve miles per hour, than to expend 50,000*t*. to 60,000*t*. per mile to go twenty miles per hour, which is certainly all the advantage gained by steam railways; and I think it must be obvious to the dullest capacity that a road involving a rent, on account of outlay, of 20*t*. per mile, could better afford to charge a moderate fare than a road involving a rent of from 20,000*t*. to 30,000*t*. per mile—the former possessing more than all the advantages of the latter, excepting speed. The enormous outlay for steam railways is mainly occasioned by adopting the principle of adhesion, or friction, on the rail. I still incline to think that the plan I proposed thirty-four years ago (for which I entered a caveat at the Patent-office)—of fixing a cast or wrought-iron rock on longitudinal timber, on the middle of the way, between the rails, the carriages to be worked thereon, by manual or steam-power—would have been better than the principle of friction; because, by such means, comparatively steep ascents might be gained, and engines of two to three tons weight would be as effective as the ponderous road and rail destroying engines of fifteen to twenty-five tons each. I shall not be much surprised if the plan will not be some day adopted, though, perhaps, not in my time; and, by adopting such a plan, probably one-third, or one-half, of the expense of constructing the roads might be saved. It is even questionable with me whether, under peculiar circumstances, manual power may not be even better than horses or steam. I have often thought, that, if five men at a windlass is equal to a horse, what is to prevent a light machine, worked by, say eight men, doing as much work as a horse, on a railway, and, as the men would not be affected by their own weight beyond about half a pound each, for friction, it may not be reasonably assumed that the men could go over eight times more ground than the horse—as the horse, at twelve miles per hour, could only do twelve miles, whereas the men could continue to exert themselves at the same speed for eight or ten hours a day, and thus accomplish about ninety-six miles in a day. Thus, owing to the peculiar formation of man, wherein speed is concerned, a man, by mechanical aid, can exceed the power of a horse, because the horse has not only to drag the load, but also to carry its own weight, which causes it to tire at the end of the first hour.

I feel quite confident, that, in theory, I am correct; and, last week, on the Grand Junction Railway, I saw what I conceive to be a practical demonstration. Mr. Tate, Eng., contractor for keeping the rails and road in repair, has constructed a machine very similar to the plan I published in Ireland last year—only, instead of using a cog-wheel, he uses a band, whereby, as I observe, he has not obtained all the advantage he might have done by using a cog-wheel. The machine does not weigh more than about 4*cwt*. by which two men can, for a short time, convey it, themselves, and four men as passengers, at a speed of from twenty to twenty-five miles per hour; and, at half that speed, I have no doubt, they would carry three times that number. A little boy, not more than seven or eight years old, propelled the machine, from a state of rest to a speed of from three to four miles per hour, with myself and another person on it, weighing together, I imagine, not less than 7*cwt*. Mr. Tate is clearly of opinion that when labour is cheap, and under peculiar circumstances, manual labour may be even cheaper than horses or steam, especially where speed is required. The machine alluded to was made to accommodate the workmen, &c., on the line, and Mr. T. informed me, that, with two men, he has gone over fifteen miles of the line, stopping at twelve different points, within the hour.

It is well known that a horse, on a good railway, will draw at least fifty passengers at the rate of twelve miles per hour; assume, therefore, that eight men shall be equal to one good horse (allowing 20 or 30 per cent. for friction of machinery, &c.), we shall then still have a power equal to the horse), and, as that number exceeds the usual average number of each train on the Greenwich Railway, is there anything unreasonable to prevent six sets, or gangs, of men performing 120 trips per day—viz., every quarter of an hour each way, for twelve hours; fifty persons each trip, or 600 per day? and, if so, and able-bodied men can be procured at 1*s*. per day, then manual power will be cheaper than horses or steam, as this would only amount to about 1*s*. per trip, or about one furlong each for the whole distance of nearly four miles, or less than the sixteenth of a penny per mile!

There are several reasons to account for the economy in constructing horse railways. First, it is not necessary to have such very heavy gradients, and, therefore, it does not require so much cutting and embanking; secondly, the timber and iron required need not be more than one-fourth the substance necessary for a steam railway, and the difference in cost of working is from 100 to 300 per cent. The average cost of working steam railways, including maintenance of way, is upwards of 20*t*. out of every 100*t*. of gross income; whereas the same amount of work could be accomplished by animal power at not exceeding one-third that amount, to convey it at half the speed; consequently, if the public would be enabled to go at the speed of ten to twelve miles per hour, they would save at the rate of 1*s*. out of every twenty, and, I think, by far the largest portion of the public would prefer the economy of money to the economy of time. Another great advantage of horse railways is, that they may be constructed on the sides of hilly roads, because, being worked by horses, there would be nothing to apprehend by way of destruction, or damage, to the public. As far as I have seen of the matter and

roads in this country, I am persuaded it is safe to estimate the cost of construction, including general contingencies, to obtain as good gradients as on many steam railways, would not exceed from 15,000*t*. to 20,000*t*. per mile; that the cost of working such railways would not exceed 20 per cent. of the gross taking, including every expense except interest of capital; and that on such railways one good horse would convey, twelve or fourteen miles per day, at least thirty passengers, at the speed of ten to twelve miles per hour, and eight to ten tons of goods from three to four miles per hour, at a charge—per passenger, say maximum 1*d*. and 1*jd*. per mile, and goods at 1*d*. to 1*jd*. per ton per mile. The reason for the great economy may readily be imagined, when it is considered that, whatever weight one horse will draw on any macadamised road, lay down an iron rail on its side, with the same undulation, and the same horse will do six from six to eight times more work.

It should be observed that the proposed railway, if conducted along the side of a turnpike road, must be constructed and managed similar to other railways, and be held and preserved as private property, belonging in like manner to a company; and, to render a double line unnecessary, turns-out, and stations, stables, &c., should be provided, at every six or seven miles, by which means (if requisite) communication from end to end, and throughout the line, might be kept up every forty-five minutes; and a labourer, or workman, should be stationed on every mile of road, to guard, to do the needful repair, and to keep the rails clean and in good condition, and to remove or prevent obstructions which might otherwise occur; thus, by systematic arrangements, great regularity of movement might be attained. It would be a still greater advantage and convenience to the public if a cottage was built for workmen employed in attending each mile of the road, because these cottages would be stations, where goods or passengers might be taken up or put down—thus obviously increasing the value of all the land through which the line passes, on account of the convenience of transit of goods from the land to the mile stations. In conclusion, allow me to state, in a debtor and creditor manner, the advantages and disadvantages of a horse railway:—

Advantages.—1. The cheapness of construction, being about from one-sixth to one-tenth the usual cost of steam railways. 2. Convenience to the public located near or on the road. 3. Greater safety, ease, and comfort, in travelling. 4. Preserving and improving the value of property contiguous to the line. 5. When constructed on the side of a turnpike road, paying a sum to the trustees equal to the toll of the coach, &c., traffic; thus saving the wear of the road. 6. Great economy in the charges—averaging about 1*d*. per mile passengers, and 2*d*. per ton per mile work.

Disadvantages.—Travelling at half the speed—viz., ten miles instead of twenty miles an hour.

Where the line is required to pass over valleys, and there be ascending and descending hills within half a mile of each summit, I propose to improve the gradient by means of a strong timber viaduct, including the expense of which, I am persuaded, the cost, in no case, on an average, would exceed 300*t*. per mile. Following the surface of the road, the cost would not exceed 100*t*. per mile. These viaducts would not, like solid embankments, injure or disfigure the land over which they might have to pass.

There cannot be a doubt but that, for what may be termed minor or short lines, especially into agricultural districts, that horse railways will be found by far the most convenient and accommodating, independent of the great saving in original cost and the expense of working.

Bristol, March 14. THOMAS MOTLEY, C.E.

LARGE CASTINGS.

TO THE EDITOR OF THE MERTHYR GUARDIAN.

SIR.—Some three or four weeks ago my attention was drawn to a paragraph in your paper, giving an account of an extraordinary large bar of iron, which was made at the Dowlais Iron-Works. Perhaps it would not be amiss to inform such of your readers, who feel interested in the manufacture of bar-iron, of the manner in which that bar was made. The pile, weighing about 3000*t*., after being sufficiently heated, was taken to the hammer and shaped into a billet; it was reheated, and drawn a second time under the hammer, after which it was again heated (for the third time), and worked in the rolls to a round bar, eight inches in diameter, and about fourteen feet long, and I am sorry to say, its appearance is far from being so good as what the reporter of that paragraph represents it to be.

On Saturday last a very large cable bolt was made at the Cyfartha Iron-Works, and, for the sake of comparison, I will also state the manner in which that bar was made, and leave it to the judgment of your readers to say which of the two was the most difficult to roll. The pile, weighing about 25*cwt*., was, after being properly heated, taken out of the heating furnace and put once into the rolls, and, in the short space of twenty minutes, came out a perfect bar, about six and a half inches diameter, nearly twenty-seven feet in length, and as "straight as a line."—Knowing the unavoidable notoriety that the Dowlais folks have obtained for "throwing the sledge," I feel a little diffidence in drawing this comparison—consequently, I have thought it better to confine myself to facts, and to let your readers draw their own conclusions. AN OLD ROLLER.

MINING CORRESPONDENCE.

ENGLISH MINES.

HOLMBURN MINING COMPANY.

March 13.—In the 110 fathom level, driving west of Wall's shaft, the lode is six inches wide, and worth about 7*s*. per fathom. In the 100 fathom level west the lode is fourteen inches wide, and worth 9*s*. per fathom; ditto, east of Wall's shaft, the ground is a little more favourable for driving—the lode is not so favourable for driving; no hole has yet been taken down in the wings sinking under the 100 fathom level. The lode in the slopes, in the back of the 100 fathom level, is without alteration since last reported—still worth about 30*s*. per fathom. The eighty and ninety fathom levels, west of Hitchins's shaft, are progressing towards the lode. In the back of the ninety fathom level the lode in the eastern slopes is twenty inches wide, and worth 30*s*. per fathom; in the middle slopes the lode is two feet wide, and worth 40*s*. per fathom; and in the western slopes the lode is two feet wide, and worth 50*s*. per fathom. In the eighty fathom level, east of Wall's shaft, the lode is one foot wide, composed of capl, spur, and mandie. The ground in the cross-cut, towards the north lode, is still favourable for driving; the lode in the slopes, in the back of ditto, is sixteen inches wide, and worth 50*s*. per fathom. The lode in the seventy fathom level, west of Hitchins's shaft, is nine inches wide, producing stones of ore. In the sixty-two fathom level, both east and west, the lode is small and unproductive. In the deep adit east the lode is sixteen inches wide, composed chiefly of capl, with some spur and mandie. The pitches are without important alteration.

J. RICHARDSON.

UNITED HILLS MINING COMPANY.

March 14.—At the seventy fathom level, in the eastern end, the lode is four and a half feet wide, two and a half feet ore of good quality; in the western end the lode is three feet wide, producing some stones of ore. At the sixty fathom level, in the eastern end, the lode is five feet wide, producing some ore, with a kindly appearance; in the western end the lode is four and a half feet wide, very throughout, but of low quality. At the fifty fathom level the lode is three feet wide, and good ore. At James's shaft the lode is three feet wide, eighteen inches ore of good quality. At the forty fathom level the lode is two feet wide, producing but very little ore. At the adit west, at Wootton Sparrow, in the adit end, the lode is two feet wide, producing some good stones of ore. In the thirty fathom level, both east and west, the lode is small and unproductive. No hole broken in the twenty fathom level west.

N. LANGDON. H. FRASER.

CORNWALL MINING COMPANY.

March 13.—The seventy fathom level, west of engine-shaft, is favourable for driving; the lode is about two feet wide, composed of spur, mandie, &c. In the sixty fathom level west the lode appears to be increasing in size, and has some promising indications of improvement. We calculated on having the west end of lead before now, but its inclination westward appears to be so rapid that it will nearly reach Murray's shaft at the fifty fathom level. Murray's shaft, sinking below the fifty fathom level, is producing some good stones of ore. No hole broken in the twenty fathom level west.

J. WOOD.

TRELEW CONSOLIDATED MINING COMPANY.

March 13.—At Christine, at the eighty fathom level west, the lode is fifteen inches wide, a regular kindly lode, but not much ore. At the eighty-west we have cut a branch, about eight inches wide, but it is not the main part of it. The seventy-west is twenty inches wide, impregnated with ore. At the sixty-west the lode is very large, and all owing work for ore. The fifty-west continues dissolved, but is more kindly. At Good Fortune the fifty-west is two feet wide, producing some good ore, and a kindly lode. The forty-west is eighteen inches wide, and not much ore. At the thirty-four-west the lode is three feet wide, and a branch of ore on the south part will produce one ton per fathom.

W. STANNON.

CORNWALL FERNSIDE MINING COMPANY.

March 13.—Hawood's shaft is now down to the fifty fathom level. The lode in the forty fathom level, east of Hawood's shaft, is one foot wide, very good tritite ground. The Blind Will's hole, at the adit level, west of Morris's shaft, is fifteen inches wide, producing some good ore. The lode in the back of the adit level, east of Morris's shaft, is much as last reported. H. WILLIAMS. J. MORRIS.

WEST WILLOUGHBY MINING ASSOCIATION.

March 13.—The ground in the eighty-five fathom level south is favourable for driving. The seventy-east, on the south branch, is worth 10*s*. per fathom—ditto, on Wheal Jewell hole, is worth 10*s*. per fathom—the slopes to the back of this level are worth 10*s*. per fathom; ditto west, has not been taken down. The south adit shaft, sinking below the seventy, is to favourable ground. The fifty-five east, on Wheal Jewell hole, has not been taken down. The forty-two east, and the pitchfork hole west, are working vigorously; and the pitchfork took well.

S. LEWIS.

TREGOLLY MINING COMPANY.

March 13.—The lode, in extending the sixty-two fathoms level east, is large, and composed of capl and spar, with a small quantity of black and grey ore. The lode going east, at the fifty fathom level, is also composed of capl and spar, with a small proportion of black and grey ore. We are at present extending the lode from the south to the north part, at the forty fathom level east, where it is very large, and found to contain some black ore, with a kindly appearance. We have not yet stopped the bottom of the sixty-two fathom level sufficiently to enable me to report particulars thereto.

JAMES NINNIS.

FOREIGN MINES.

REAL DEL MONTE MINING COMPANY.

We last week gave an ample report of the highly satisfactory proceedings at the meeting of this company—the bright prospects detailed in the reports from the agents, we are happy to say, are fully corroborated in the elaborate statements read at the meeting. From the managers' reports, we find that the Biscayan vein and Tererro shaft yielded returns to the amount of \$25,000 per month; the Santa Yara vein, which crosses the Biscayan, \$4000; the Santa Brígida vein, in the mine of Sacramento, \$6600; Acosta, \$23,700; and the total produce had averaged \$71,700 per month. The improvement in the ley of the ores had been very satisfactory, and, upon the whole, the future prospects of the company were highly encouraging.

BOLANOS MINING COMPANY.

The following is an abstract of the managers' report, read in the proprietors at their meeting, held on the 8th inst., and referred to in our last:—The discoveries in the Barranco mine, which induced Mr. Flores to continue trials for a limited period, looked well for a time, but suddenly fell off in April, and in May last the works were suspended. For the period of six months, during which the trials were made, the loss was calculated at \$27,000, but the produce of silver from the ores being much greater than was anticipated, this amount will be materially lessened, if the cost is not entirely covered. Some new methods of concentration and reduction of the ores have been completely successful; they have been in regular operation since June, and the results have had considerable effect on the value of the returns; and a considerable quantity of ores, which were not before considered worth reducing, would now be worked up with profit. With respect to the northern mines, the directors had consented to certain operations, to a small monthly amount, but it had been found impossible to prosecute these operations effectively with the means proposed, and they were giving the matter their serious consideration, with a view to an advantageous determination of this important matter. About the month of June the company acquired a considerable addition of ground, through which the productive veins are known to pass, and the extent of their mining field thus includes, besides the mines of Meliánche, San Clemente, and San Nicolas, those of Lorito, San Rafael, Santa Barbara, and Veta Bella—all these are adjacent, and are held in high estimation. Since the month of July, when the ley of the ores became so low as seriously to diminish the value of the returns, no material improvement had taken place, and the profits were low and fluctuating. From the advices received, since the beginning of February, San Nicolas, it appears, had given indications of improvement. The fluctuating character of the mines had long been known and asserted; and, in the directors' time, there had been two periods of rapid profit, with one of considerable loss; these profitable periods enabled the company to relieve their affairs from the serious embarrassments of 1841, and was sufficient to discharge the weight of debts both in this country and Mexico.

IMPERIAL BRAZILIAN MINING ASSOCIATION.

Gongo Soco, Dec. 31.—Since the date of our last we have obtained a little gold from the back of the forty-one fathom level, west of Curtis's, and a little from the twenty-one fathom level, east of Walker's, shafts. Vesey's engine has been working since the 28th inst. We commence working in the thirty-two fathom level in the course of a few days. Our quarterly mining report, with sketches of the underground workings, will be prepared against the 10th of next month. T. BLANEY. E. PENNINGTON. J. LUCAS.

Jan. 3.—The mine continues poor, although a little gold has been obtained from the vein in the back of the forty-one fathom level, west of Curtis's, and a little also from the back of the twenty-one fathom level, east of Walker's. E. A. CHASE.

Rio Janciro, Jan. 17.—The troupe of the Cata Branch Company arrived on the 12th inst., and brought us a remittance, on your account, from Gongo Soco, according to the documents which accompanied it, of 116*lb*. gold dust, which, less 2*lb*. 3*oz*. 16*dwt*.—2 per cent. export duty, we have deducted in the *Ranger* packet, as per bill of lading we now beg to enclose.—The exchange closed at 2*ls*. firm.

NAVARO BROTHERS & CO

MEETINGS OF SCIENTIFIC BODIES.
IN THE ENSUING WEEK.

SOCIETY.	PLACE OF MEETING.	DAY.	HOUR.
Statistical.	St. Martin's place.	Monday	2 p.m.
British Architects	15, Grosvenor-street.	Monday	2 p.m.
Medical.	Bath-court, Fleet-street.	Monday	2 p.m.
London.	John-square.	Tuesday	2 p.m.
Horticultural.	21, Regent-street.	Tuesday	2 p.m.
Civil Engineers.	10, Great George-street.	Tuesday	2 p.m.
London Electrical.	Aldwicks-street.	Tuesday	2 p.m.
Chemical.	Meeting of Arts, Adelphi.	Tuesday	2 p.m.
Society of Arts.	Adelphi.	Wednesday	7 p.m.
Geological.	Somerset House.	Wednesday	2 p.m.
Medico-Botanical.	25, Cockspur-street.	Wednesday	2 p.m.
Pharmaceutical.	17, Bloomsbury-square.	Wednesday	2 p.m.
Royal Antropological.	Somerset House.	Thursday	2 p.m.
Royal Society of Literature.	St. Martin's place.	Thursday	2 p.m.
Economic Society.	Somerset House.	Thursday	2 p.m.
Royal Institution.	Atheneum-street.	Friday	2 p.m.
Royal Asiatic.	14, Grosvenor-street.	Saturday	2 p.m.
Royal Botanical.	Regent's park.	Saturday	2 p.m.
Westminster Medical.	Easter Hall.	Saturday	2 p.m.
Mathematical.	Cringle-street, Spitalfields.	Saturday	2 p.m.

PUBLIC COMPANIES.

MEETINGS.		
Northern and Eastern Railway.	London Tavern.	March 21
British American Land Company.	London Tavern.	21
Bank of Monte Mining Company.	2, Duke-street, Adelphi.	23
General Salvage Company.	3, Fenchurch Street.	24
Aspinwall and Sunderland Railway.	Committee Room, Sanderson-street.	24
East Geological Gardens Company Cross Keys.	Grange-street.	25
Transit Mining Company.	41, Fleet-street square.	April 11
CAUSES.		
Lancashire Railway and Dock Co.	24, per share.	March 20
Metropolitan Wood Paving Co.	21, per share.	As usual
DIVIDENDS.		
Great Western Railway.	54 per cent.	As usual

CURRENT PRICES OF STOCKS AND SHARES.

STOCK EXCHANGE.		Referring morning, Twelve o'clock.
Date.	per Cent.	March 20
1000 Accrual, 90 1/2	90 1/2	90 1/2
New per Cent., 102 1/2	102 1/2	102 1/2
Accrued 5 per Cent., —	—	—
Reduced 5 per Cent., —	—	—
Long Accruals, 102 1/2-15	102 1/2-15	102 1/2-15
Bank Stock, —	—	—
Farnborough Hills, 70-72 per cent.	70-72	70-72
Brighton Bonds, 6 per Cent., 104 1/2	104 1/2	104 1/2
Brighton, 6 per Cent., 104 1/2	104 1/2	104 1/2
Brighton, 6 per Cent., 104 1/2	104 1/2	104 1/2
Brighton, 6 per Cent., 104 1/2	104 1/2	104 1/2

PROMINENT NOTES AND BILLION.—An account of the average aggregate amount of promissory notes, payable to bearer on demand, which have been in circulation in the United Kingdom, distinguishing those circulated by the Bank of England, by private banks, and by joint stock banks, in England and Wales, by the banks in Scotland, by the Bank of Ireland, and by all other banks in Ireland; and of the average amount of bullion in the Bank of England, during the four weeks ending the 30th day of March, 1852.—BANKS.—The Bank of England, 1,000,000; private banks, 4,780,764; joint-stock banks, 2,814,767.—BUREAUX.—Bank of Ireland, 2,000,000; private and joint-stock banks, 2,308,327.—FIRECLAS.—Bank of Ireland, 2,000,000; private and joint-stock banks, 2,007,261.—TAXES.—Bank of Ireland, 2,000,000; joint-stock banks, 2,007,261.—Tolls, 10,000,000; Railways in the Bank of England, 10,000,000.

Strikes and Taxes, March 17.

[From our own correspondents.]

LATEST PRICES OF IRISH STOCKS.—3 per cent. Consols, 90 1/2, to 91; 100 Accrual, 101 1/2, to 102 per cent.; 1000 Accrual, 90 1/2, to 91; 1000 Accrual, 101 1/2, to 102 per cent.; 1000 Accrual, 102 1/2, to 103 per cent.; 1000 Accrual, 103 1/2, to 104 per cent.; 1000 Accrual, 104 1/2, to 105 per cent.; 1000 Accrual, 105 1/2, to 106 per cent.; 1000 Accrual, 106 1/2, to 107 per cent.; 1000 Accrual, 107 1/2, to 108 per cent.; 1000 Accrual, 108 1/2, to 109 per cent.; 1000 Accrual, 109 1/2, to 110 per cent.; 1000 Accrual, 110 1/2, to 111 per cent.; 1000 Accrual, 111 1/2, to 112 per cent.; 1000 Accrual, 112 1/2, to 113 per cent.; 1000 Accrual, 113 1/2, to 114 per cent.; 1000 Accrual, 114 1/2, to 115 per cent.; 1000 Accrual, 115 1/2, to 116 per cent.; 1000 Accrual, 116 1/2, to 117 per cent.; 1000 Accrual, 117 1/2, to 118 per cent.; 1000 Accrual, 118 1/2, to 119 per cent.; 1000 Accrual, 119 1/2, to 120 per cent.; 1000 Accrual, 120 1/2, to 121 per cent.; 1000 Accrual, 121 1/2, to 122 per cent.; 1000 Accrual, 122 1/2, to 123 per cent.; 1000 Accrual, 123 1/2, to 124 per cent.; 1000 Accrual, 124 1/2, to 125 per cent.; 1000 Accrual, 125 1/2, to 126 per cent.; 1000 Accrual, 126 1/2, to 127 per cent.; 1000 Accrual, 127 1/2, to 128 per cent.; 1000 Accrual, 128 1/2, to 129 per cent.; 1000 Accrual, 129 1/2, to 130 per cent.; 1000 Accrual, 130 1/2, to 131 per cent.; 1000 Accrual, 131 1/2, to 132 per cent.; 1000 Accrual, 132 1/2, to 133 per cent.; 1000 Accrual, 133 1/2, to 134 per cent.; 1000 Accrual, 134 1/2, to 135 per cent.; 1000 Accrual, 135 1/2, to 136 per cent.; 1000 Accrual, 136 1/2, to 137 per cent.; 1000 Accrual, 137 1/2, to 138 per cent.; 1000 Accrual, 138 1/2, to 139 per cent.; 1000 Accrual, 139 1/2, to 140 per cent.; 1000 Accrual, 140 1/2, to 141 per cent.; 1000 Accrual, 141 1/2, to 142 per cent.; 1000 Accrual, 142 1/2, to 143 per cent.; 1000 Accrual, 143 1/2, to 144 per cent.; 1000 Accrual, 144 1/2, to 145 per cent.; 1000 Accrual, 145 1/2, to 146 per cent.; 1000 Accrual, 146 1/2, to 147 per cent.; 1000 Accrual, 147 1/2, to 148 per cent.; 1000 Accrual, 148 1/2, to 149 per cent.; 1000 Accrual, 149 1/2, to 150 per cent.; 1000 Accrual, 150 1/2, to 151 per cent.; 1000 Accrual, 151 1/2, to 152 per cent.; 1000 Accrual, 152 1/2, to 153 per cent.; 1000 Accrual, 153 1/2, to 154 per cent.; 1000 Accrual, 154 1/2, to 155 per cent.; 1000 Accrual, 155 1/2, to 156 per cent.; 1000 Accrual, 156 1/2, to 157 per cent.; 1000 Accrual, 157 1/2, to 158 per cent.; 1000 Accrual, 158 1/2, to 159 per cent.; 1000 Accrual, 159 1/2, to 160 per cent.; 1000 Accrual, 160 1/2, to 161 per cent.; 1000 Accrual, 161 1/2, to 162 per cent.; 1000 Accrual, 162 1/2, to 163 per cent.; 1000 Accrual, 163 1/2, to 164 per cent.; 1000 Accrual, 164 1/2, to 165 per cent.; 1000 Accrual, 165 1/2, to 166 per cent.; 1000 Accrual, 166 1/2, to 167 per cent.; 1000 Accrual, 167 1/2, to 168 per cent.; 1000 Accrual, 168 1/2, to 169 per cent.; 1000 Accrual, 169 1/2, to 170 per cent.; 1000 Accrual, 170 1/2, to 171 per cent.; 1000 Accrual, 171 1/2, to 172 per cent.; 1000 Accrual, 172 1/2, to 173 per cent.; 1000 Accrual, 173 1/2, to 174 per cent.; 1000 Accrual, 174 1/2, to 175 per cent.; 1000 Accrual, 175 1/2, to 176 per cent.; 1000 Accrual, 176 1/2, to 177 per cent.; 1000 Accrual, 177 1/2, to 178 per cent.; 1000 Accrual, 178 1/2, to 179 per cent.; 1000 Accrual, 179 1/2, to 180 per cent.; 1000 Accrual, 180 1/2, to 181 per cent.; 1000 Accrual, 181 1/2, to 182 per cent.; 1000 Accrual, 182 1/2, to 183 per cent.; 1000 Accrual, 183 1/2, to 184 per cent.; 1000 Accrual, 184 1/2, to 185 per cent.; 1000 Accrual, 185 1/2, to 186 per cent.; 1000 Accrual, 186 1/2, to 187 per cent.; 1000 Accrual, 187 1/2, to 188 per cent.; 1000 Accrual, 188 1/2, to 189 per cent.; 1000 Accrual, 189 1/2, to 190 per cent.; 1000 Accrual, 190 1/2, to 191 per cent.; 1000 Accrual, 191 1/2, to 192 per cent.; 1000 Accrual, 192 1/2, to 193 per cent.; 1000 Accrual, 193 1/2, to 194 per cent.; 1000 Accrual, 194 1/2, to 195 per cent.; 1000 Accrual, 195 1/2, to 196 per cent.; 1000 Accrual, 196 1/2, to 197 per cent.; 1000 Accrual, 197 1/2, to 198 per cent.; 1000 Accrual, 198 1/2, to 199 per cent.; 1000 Accrual, 199 1/2, to 200 per cent.; 1000 Accrual, 200 1/2, to 201 per cent.; 1000 Accrual, 201 1/2, to 202 per cent.; 1000 Accrual, 202 1/2, to 203 per cent.; 1000 Accrual, 203 1/2, to 204 per cent.; 1000 Accrual, 204 1/2, to 205 per cent.; 1000 Accrual, 205 1/2, to 206 per cent.; 1000 Accrual, 206 1/2, to 207 per cent.; 1000 Accrual, 207 1/2, to 208 per cent.; 1000 Accrual, 208 1/2, to 209 per cent.; 1000 Accrual, 209 1/2, to 210 per cent.; 1000 Accrual, 210 1/2, to 211 per cent.; 1000 Accrual, 211 1/2, to 212 per cent.; 1000 Accrual, 212 1/2, to 213 per cent.; 1000 Accrual, 213 1/2, to 214 per cent.; 1000 Accrual, 214 1/2, to 215 per cent.; 1000 Accrual, 215 1/2, to 216 per cent.; 1000 Accrual, 216 1/2, to 217 per cent.; 1000 Accrual, 217 1/2, to 218 per cent.; 1000 Accrual, 218 1/2, to 219 per cent.; 1000 Accrual, 219 1/2, to 220 per cent.; 1000 Accrual, 220 1/2, to 221 per cent.; 1000 Accrual, 221 1/2, to 222 per cent.; 1000 Accrual, 222 1/2, to 223 per cent.; 1000 Accrual, 223 1/2, to 224 per cent.; 1000 Accrual, 224 1/2, to 225 per cent.; 1000 Accrual, 225 1/2, to 226 per cent.; 1000 Accrual, 226 1/2, to 227 per cent.; 1000 Accrual, 227 1/2, to 228 per cent.; 1000 Accrual, 228 1/2, to 229 per cent.; 1000 Accrual, 229 1/2, to 230 per cent.; 1000 Accrual, 230 1/2, to 231 per cent.; 1000 Accrual, 231 1/2, to 232 per cent.; 1000 Accrual, 232 1/2, to 233 per cent.; 1000 Accrual, 233 1/2, to 234 per cent.; 1000 Accrual, 234 1/2, to 235 per cent.; 1000 Accrual, 235 1/2, to 236 per cent.; 1000 Accrual, 236 1/2, to 237 per cent.; 1000 Accrual, 237 1/2, to 238 per cent.; 1000 Accrual, 238 1/2, to 239 per cent.; 1000 Accrual, 239 1/2, to 240 per cent.; 1000 Accrual, 240 1/2, to 241 per cent.; 1000 Accrual, 241 1/2, to 242 per cent.; 1000 Accrual, 242 1/2, to 243 per cent.; 1000 Accrual, 243 1/2, to 244 per cent.; 1000 Accrual, 244 1/2, to 245 per cent.; 1000 Accrual, 245 1/2, to 246 per cent.; 1000 Accrual, 246 1/2, to 247 per cent.; 1000 Accrual, 247 1/2, to 248 per cent.; 1000 Accrual, 248 1/2, to 249 per cent.; 1000 Accrual, 249 1/2, to 250 per cent.; 1000 Accrual, 250 1/2, to 251 per cent.; 1000 Accrual, 251 1/2, to 252 per cent.; 1000 Accrual, 252 1/2, to 253 per cent.; 1000 Accrual, 253 1/2, to 254 per cent.; 1000 Accrual, 254 1/2, to 255 per cent.; 1000 Accrual, 255 1/2, to 256 per cent.; 1000 Accrual, 256 1/2, to 257 per cent.; 1000 Accrual, 257 1/2, to 258 per cent.; 1000 Accrual, 258 1/2, to 259 per cent.; 1000 Accrual, 259 1/2, to 260 per cent.; 1000 Accrual, 260 1/2, to 261 per cent.; 1000 Accrual, 261 1/2, to 262 per cent.; 1000 Accrual, 262 1/2, to 263 per cent.; 1000 Accrual, 263 1/2, to 264 per cent.; 1000 Accrual, 264 1/2, to 265 per cent.; 1000 Accrual, 265 1/2, to 266 per cent.; 1000 Accrual, 266 1/2, to 267 per cent.; 1000 Accrual, 267 1/2, to 268 per cent.; 1000 Accrual, 268 1/2, to 269 per cent.; 1000 Accrual, 269 1/2, to 270 per cent.; 1000 Accrual, 270 1/2, to 271 per cent.; 1000 Accrual, 271 1/2, to 272 per cent.; 1000 Accrual, 272 1/2, to 273 per cent.; 1000 Accrual, 273 1/2, to 274 per cent.; 1000 Accrual, 274 1/2, to 275 per cent.; 1000 Accrual, 275 1/2, to 276 per cent.; 1000 Accrual, 276 1/2, to 277 per cent.; 1000 Accrual, 277 1/2, to 278 per cent.; 1000 Accrual, 278 1/2, to 279 per cent.; 1000 Accrual, 279 1/2, to 280 per cent.; 1000 Accrual, 280 1/2, to 281 per cent.; 1000 Accrual, 281 1/2, to 282 per cent.; 1000 Accrual, 282 1/2, to 283 per cent.; 1000 Accrual, 283 1/2, to 284 per cent.; 1000 Accrual, 284 1/2, to 285 per cent.; 1000 Accrual, 285 1/2, to 286 per cent.; 1000 Accrual, 286 1/2, to 287 per cent.; 1000 Accrual, 287 1/2, to 288 per cent.; 1000 Accrual, 288 1/2, to 289 per cent.; 1000 Accrual, 289 1/2, to 290 per cent.; 1000 Accrual, 290 1/2, to 291 per cent.; 1000 Accrual, 291 1/2, to 292 per cent.; 1000 Accrual, 292 1/2, to 293 per cent.; 1000 Accrual, 293 1/2, to 294 per cent.; 1000 Accrual, 294 1/2, to 295 per cent.; 1000 Accrual, 295 1/2, to 296 per cent.; 1000 Accrual, 296 1/2, to 297 per cent.; 1000 Accrual, 297 1/2, to 298 per cent.; 1000 Accrual, 298 1/2, to 299 per cent.; 1000 Accrual, 299 1/2, to 300 per cent.;